MAGNAVOX

SERVICE MANUAL

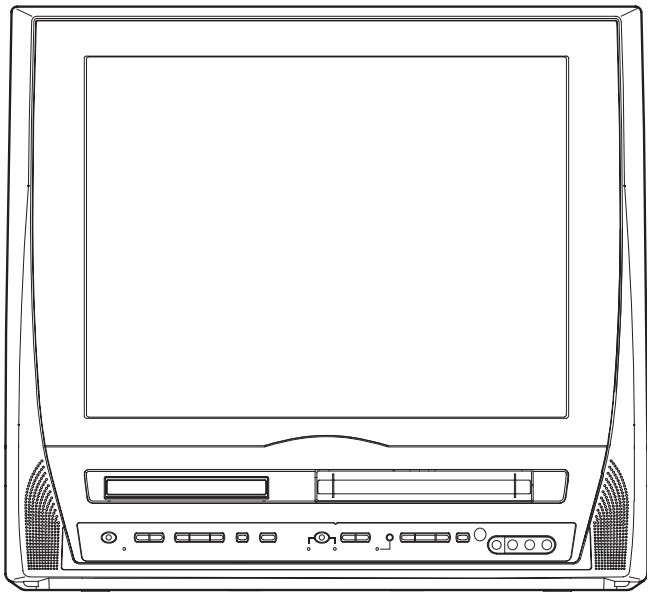
Main Section
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded Views
- Parts List

When servicing the deck mechanism, refer to MK14 Deck Mechanism Section.

Deck Mechanism Part No.: N2446FT

20″ PURE FLAT COLOR TV/DVD/VCR

MWC20T6



VHS

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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MAIN SECTION

20″ PURE FLAT COLOR TV/DVD/VCR

MWC20T6

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- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA's**
- **Exploded Views**
- **Parts List**

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SPECIFICATIONS

✳ Mode---------SP mode unless otherwise specified

✳ Test input terminal
<Except Tuner>--------Video input (1 Vp-p)
Audio input (-10 dB)
<Tuner>----------Ant. input (80 dBμV) Video: 87.5%
Audio: 25 kHz dev. (1 kHz Sin)

< DEFLECTION >

Description	Condition	Unit	Nominal	Limit
1. Over Scan	---	%	90	5
2. Linearity	Horizontal	%	---	±18
	Vertical	%	---	±10
3. High Voltage	---	kV	27	---

< VIDEO & CHROMA >

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m	---	0.4
	Corner	m/m	---	2.5
	Side	m/m	---	1.5
2. Tint Control Range	---	deg	±30	---
3. Contrast Control Range	---	dB	6	2
4. Brightness (100% White Full Field)	Contrast: Max	ft-L	40	24
5. Color Temperature	---	K	9200	---

< DVD >

Description		Condition	Unit	Nominal	Limit
1. Horizontal Resolution (TDV-540 TIT.2 CHP.16)		---	Line	350	300
2. Video S/N at CN3400 (TDV-540 TIT.2 CHP.6)		---	dB	60	55
3. S/N Chroma at CN3400 (TDV-540 TIT.2 CHP.17)	AM	---	dB	58	53
	PM	---	dB	58	53
4. Audio Distortion (LPCM 48 kHz, W/LPF) (PTD 1-NOR TIT.1 CHP.1)		L R	%	0.03	0.07
5. Audio freq. response (LPCM 48 kHz) (PTD 1-NOR TIT.1 CHP.5 -- 10)		L, 20 Hz R, 20 Hz L, 20 kHz R, 20 kHz	dB	0	+4/-5
6. Audio S/N (LPCM 48 kHz,W/LPF,A-WTD) (PTD 1-NOR TIT.1 CHP.1 -- 2)		L R	dB	85	75

< VCR >

Description		Condition	Unit	Nominal	Limit
1. Horizontal Resolution		(R/P, SP)	Line	230	200
2. Jitter (Low)		(R/P, SP)	μs	0.1	0.2
3. S/N Chroma	AM(SP)	(R/P, SP)	dB	38	33
	PM(SP)	(R/P, SP)	dB	38	33
4. Wow & Flutter (JIS, UNWTD)		(R/P, SP)	%	0.25	0.5

< TUNER >

Description	Condition	Unit	Nominal	Limit
1. Video S/N (80 dBμV, TV4ch)	---	dB	45	40
2. Audio S/N (W/LPF)	---	dB	45	40

< NORMAL AUDIO>

All items are measured across 8 Ω resistor at speaker output terminal.

Description		Condition	Unit	Nominal	Limit
1. Audio Output Power		(R/P, SP)	W	1.0	0.8
2. Audio S/N (W/LPF)		(R/P, SP)	dB	40	36
3. Audio distortion (W/LPF, -10 dB 1 kHz IN)		(R/P, SP)	%	3.0	5.0
4. Audio Freq. Response (-10dB 1kHz IN)	200 Hz	(R/P, SP)	dB	-2.0	-2.0±5.0
	8 kHz	(R/P, SP)	dB	0	0±6.0

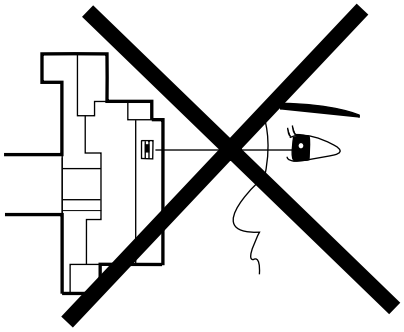
< Hi-Fi AUDIO >

Description		Condition	Unit	Nominal	Limit
1. Output Level (-10 dB 1 kHz IN)		(R/P, SP)	dB	-8.0	-8±4
2. Audio Distortion (-10 dB 1 kHz IN)		(R/P, SP)	%	0.5	1.0
3. Freq. Response (-15 dB 1 kHz IN)	20 Hz	(R/P, SP)	dB	0	±4
	20 kHz	(R/P, SP)	dB	0	±4

Note: Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

LASER BEAM SAFETY PRECAUTIONS

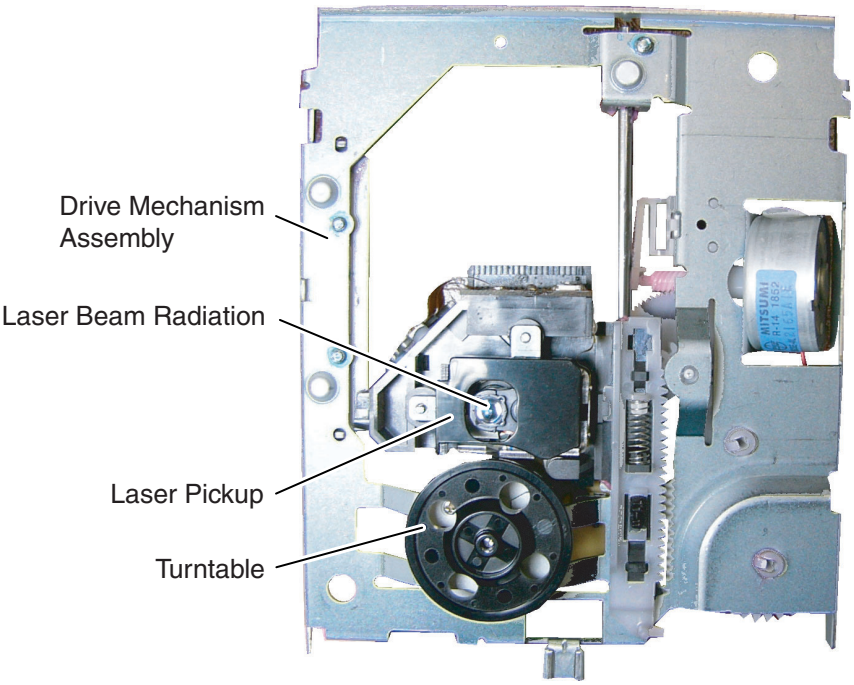
This DVD player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

CAUTION: Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



CAUTION
LASER RADIATION
WHEN OPEN. DO NOT
STARE INTO BEAM.

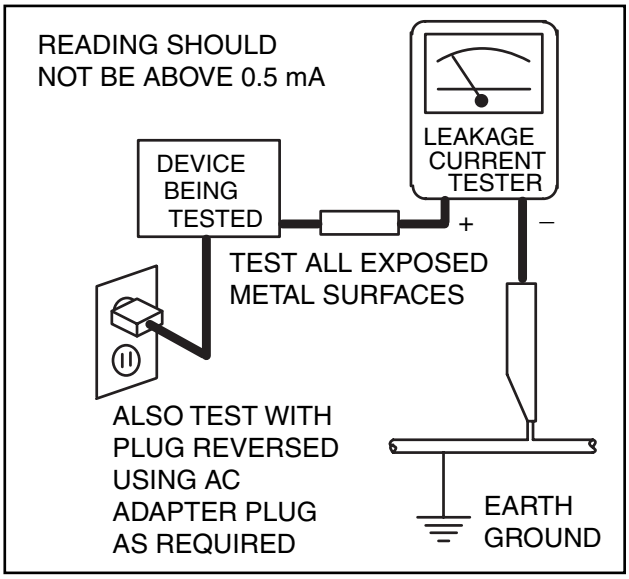
Location: Top of DVD mechanism.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:
   - **a.** Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
   - **b.** Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
   - **c. Antenna Cold Check -** With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
   - **d. Leakage Current Hot Check -** With the instrument completely reassembled, plug the AC line cord directly into a 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

- **e. X-Radiation and High Voltage Limits -** Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original.

Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called “horizontal disable” or “hold down.”) Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/ adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.
3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.
4. **Picture Tube Implosion Protection Warning -** The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some “in-line” picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such “permanently attached” yokes from the picture tube.
5. **Hot Chassis Warning -**
   a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.
   b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.
   c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.
6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts, c. the AC supply, d. high voltage, and, e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.
7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.
8. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes

of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety.
Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation Tape
2) PVC tubing
3) Spacers
4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
When replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, in order to prevent shock hazards, perform carefully and precisely the following steps.
Replacement procedure
1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector (discard it).
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the DVD/VCR connectors, first, disconnect the AC plug from the AC supply socket.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d), (d')
110 to 130 V	U.S.A. or Canada	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

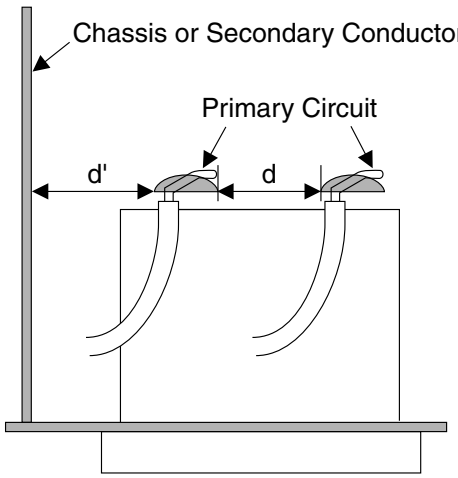


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

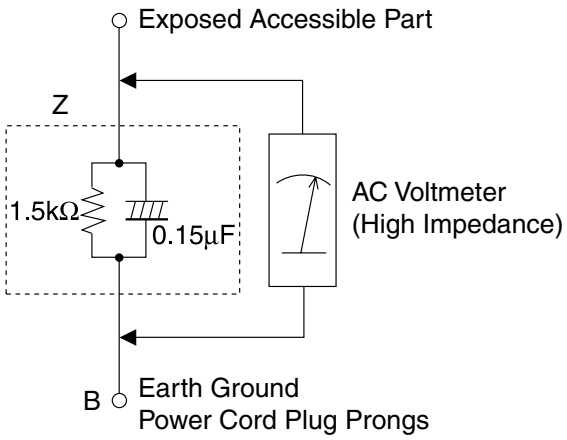


Fig. 2

Table 2: Leakage current ratings for selected areas

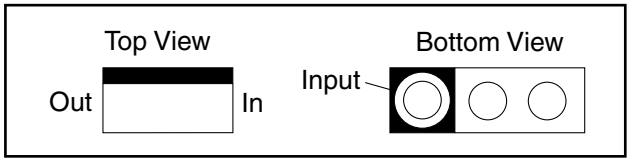
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	U.S.A. or Canada	0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel	i ≤ 0.5 mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

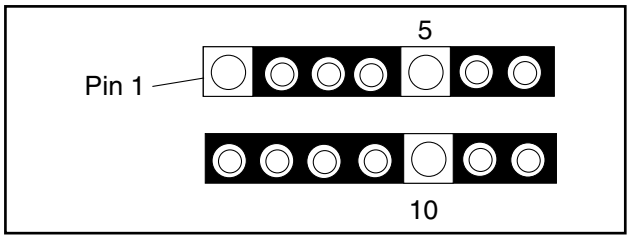
STANDARD NOTES FOR SERVICING

Circuit Board Indications

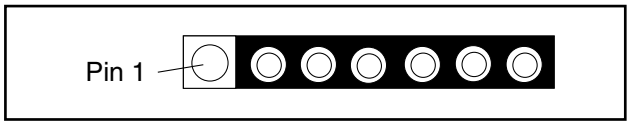
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

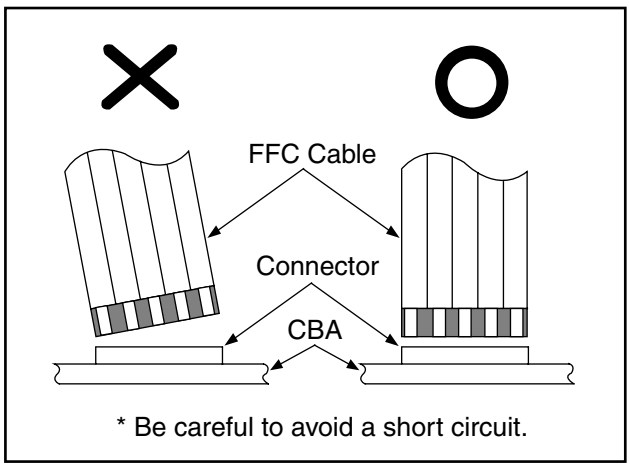


3. The 1st pin of every male connector is indicated as shown.



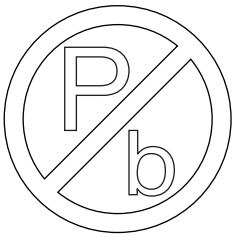
Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



Pb (Lead) Free Solder

Pb free mark will be found on PCBs which use Pb free solder. (Refer to figure.) For PCBs with Pb free mark, be sure to use Pb free solder. For PCBs without Pb free mark, use standard solder.



Pb free mark

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

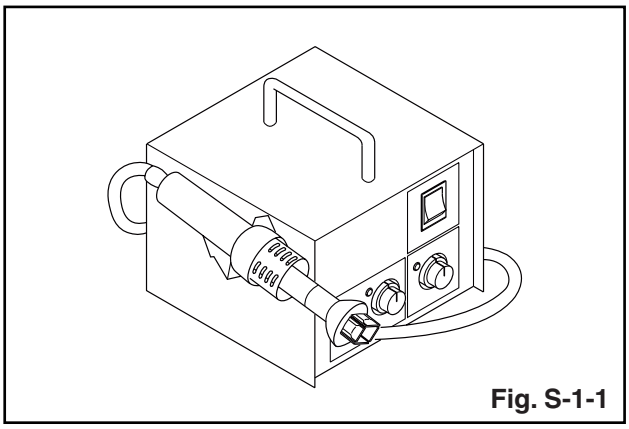


Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape

around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

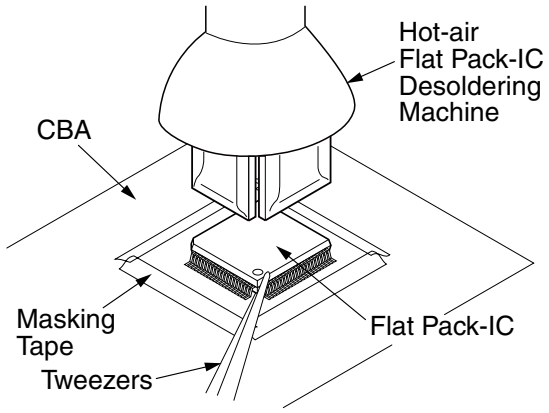


Fig. S-1-2

With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

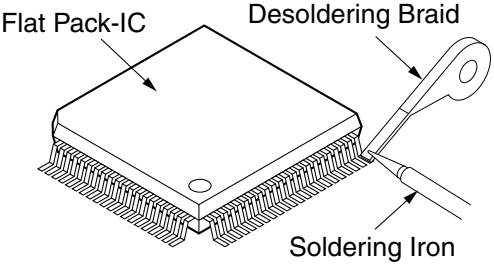


Fig. S-1-3

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

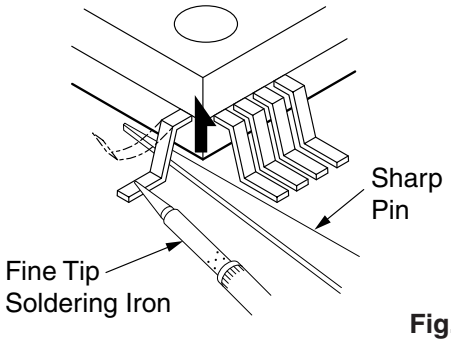


Fig. S-1-4

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

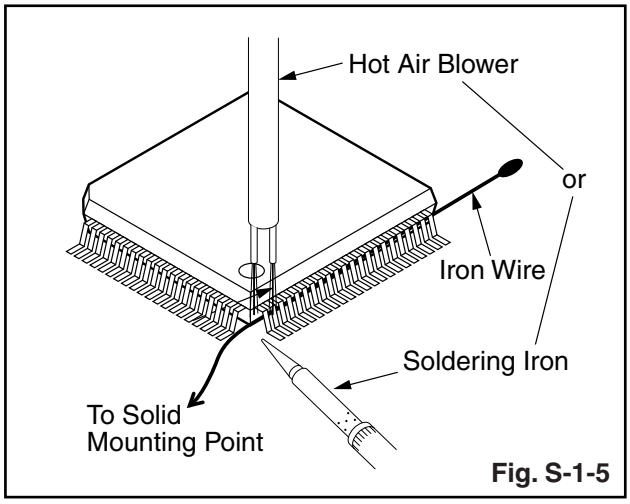


Fig. S-1-5

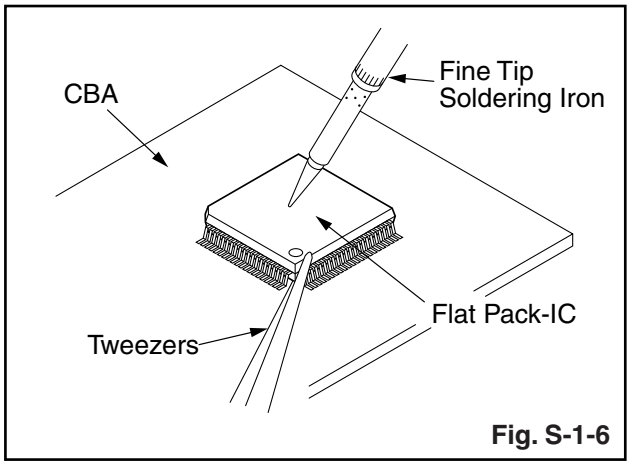


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

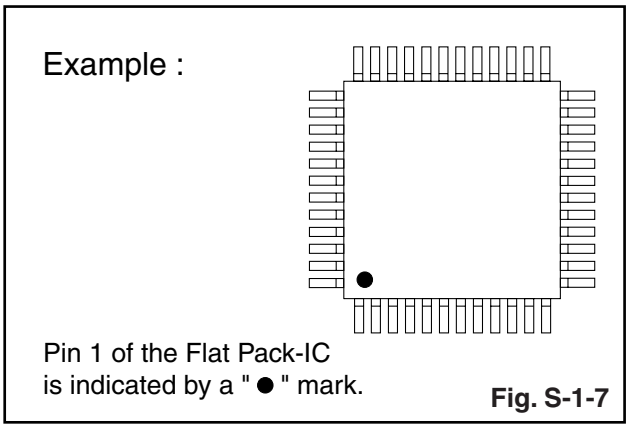


Fig. S-1-7

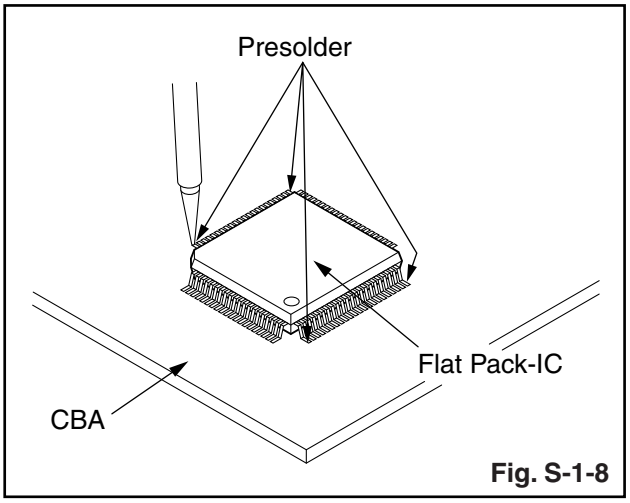


Fig. S-1-8

Instructions for Handling Semi-conductors

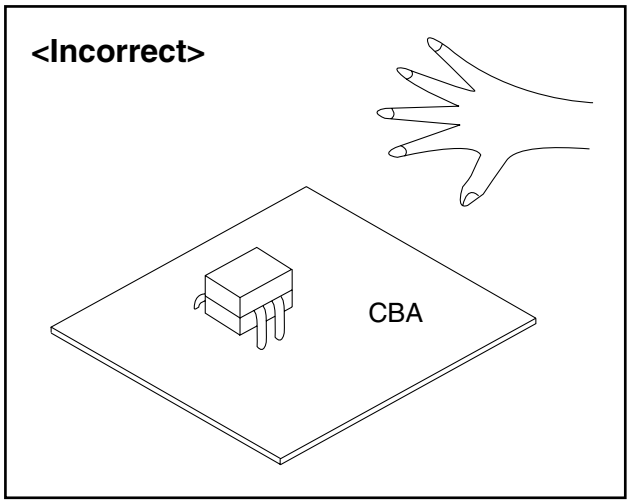
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

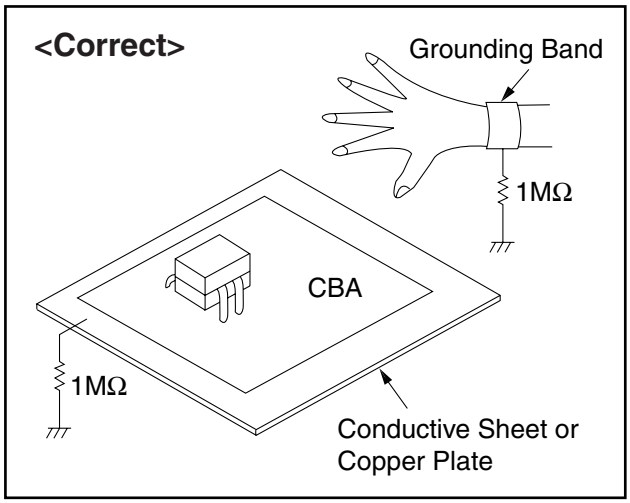
1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.





PREPARATION FOR SERVICING

How to Enter the Service Mode

Caution 1:

1. Optical sensors system are used for Tape Start and End Sensor on this equipment. Read this page carefully and prepare as described on this page before starting to service; otherwise, the unit may operate unexpectedly.

Preparing 1:

1. Cover Q1202 (START SENSOR) and Q1201 (END SENSOR) with Insulation Tape or enter the service mode to activate Sensor Inhibition automatically.

Note: Avoid playing, rewinding or fast forwarding the tape to its beginning or end, because both Tape End Sensors are not active.

How to Enter the Service Mode

1. Turn power on.
2. Use service remote control unit and press [DISC MENU] button. (See page 1-7-1.)
3. When entering the service mode, one of the number (1, 2 or 4) will be displayed at corners of the screen.
4. During the service mode, electrical adjustment mode can be selected by remote control key. (Service remote control unit).

   Details are as follows.

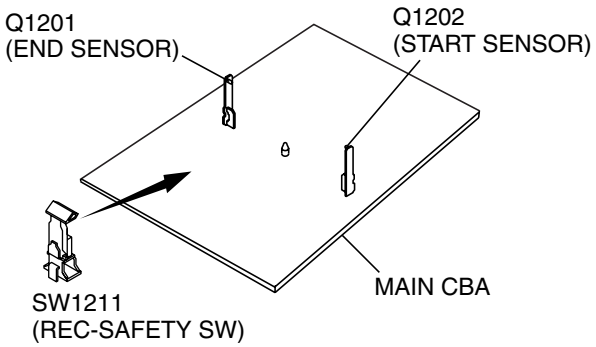
Key	Adjustment Mode
PICTURE	Picture adjustment mode: Press the [PICTURE] button to change from BRT (Bright), *CNT (Contrast), *COL (Color), *TNT(Tint), *V-T(V-Tint) and *SHP (Sharp). Press [CH. ▲/▼] buttons to display Initial Value. *Marked items are not necessary to adjust normally.
0	No need to use.
1	No need to use.
2	H f_0 adjustment mode: See adjustment instructions page 1-7-2.
3	No need to use.
4	Auto record mode: Perform recording (15 Sec.) --> Stop --> Rewind (Zero return) automatically.
5	Head switching position adjustment: See adjustment instructions page 1-7-5.
6	No need to use.
7	Purity check mode: Shows Red, Green, Blue or White cyclically on the screen each time the [7] button is pressed.
8	H. Position adjustment: See adjustment instructions page 1-7-4.
9	V. Shift/V.Size adjustment: See adjustment instructions page 1-7-5.
VOL ▲	No need to use.
VOL ▼	Cut-off adjustment: See adjustment instructions page 1-7-3. White balance adjustment: See adjustment instructions page 1-7-3.

Caution 2:

1. The deck mechanism assembly is mounted on the Main CBA directly, and SW1211 (REC-SAFETY SW) is mounted on the Main CBA. When deck mechanism assembly is removed from the Main CBA due to servicing, this switch can not be operated automatically.

Preparing 2:

1. To eject the tape, press the [STOP/EJECT] button on the unit (or Remote Control).
2. When you want to record during the Service mode, press the [Rec] button while depressing SW1211 (REC-SAFETY SW) on the Main CBA.



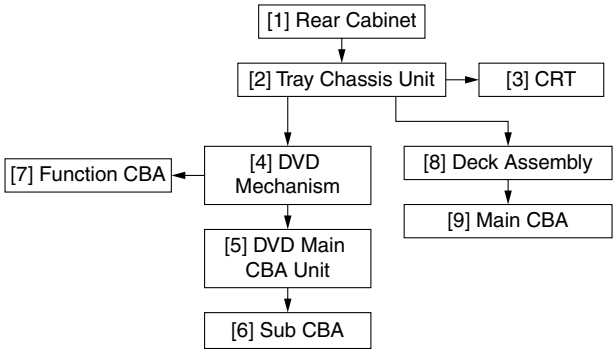
CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

CAUTION!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

Step/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Unclamp/ Desolder	Note
[1]	Rear Cabinet	D1	4(S-1), (S-2), (S-3A), (S-3B)	---
[2]	Tray Chassis Unit	D2 D3 D5	Anode Cap, *CN2501, CRT CBA, *CN1601, *CN3802, *CN2571, *CN3801	1
[3]	CRT	D3 D5	4(S-4)	---
[4]	DVD Mechanism	D2 D4 D5	4(S-5), *CN201, *CN301	2, 3
[5]	DVD Main CBA Unit	D2 D4 D5	*CN1, *CN2	---
[6]	Sub CBA	D2 D5	5(S-6), *CN1301, *CN1602, *CL2601	---
[7]	Function CBA	D2 D5	*CN2401	---
[8]	Deck Assembly	D2 D5	3(S-7), Top Shield, 5(S-8), (S-9), (S-10), *CL1201, *CL1401, *CL1402, *CL1403	4
[9]	Main CBA	D2	5(S-11)	---
		↓ (3)	↓ (4)	↓ (5)

Note:

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order. These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw, CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to the following “Reference Notes in the Table”.

Reference Notes in the Table

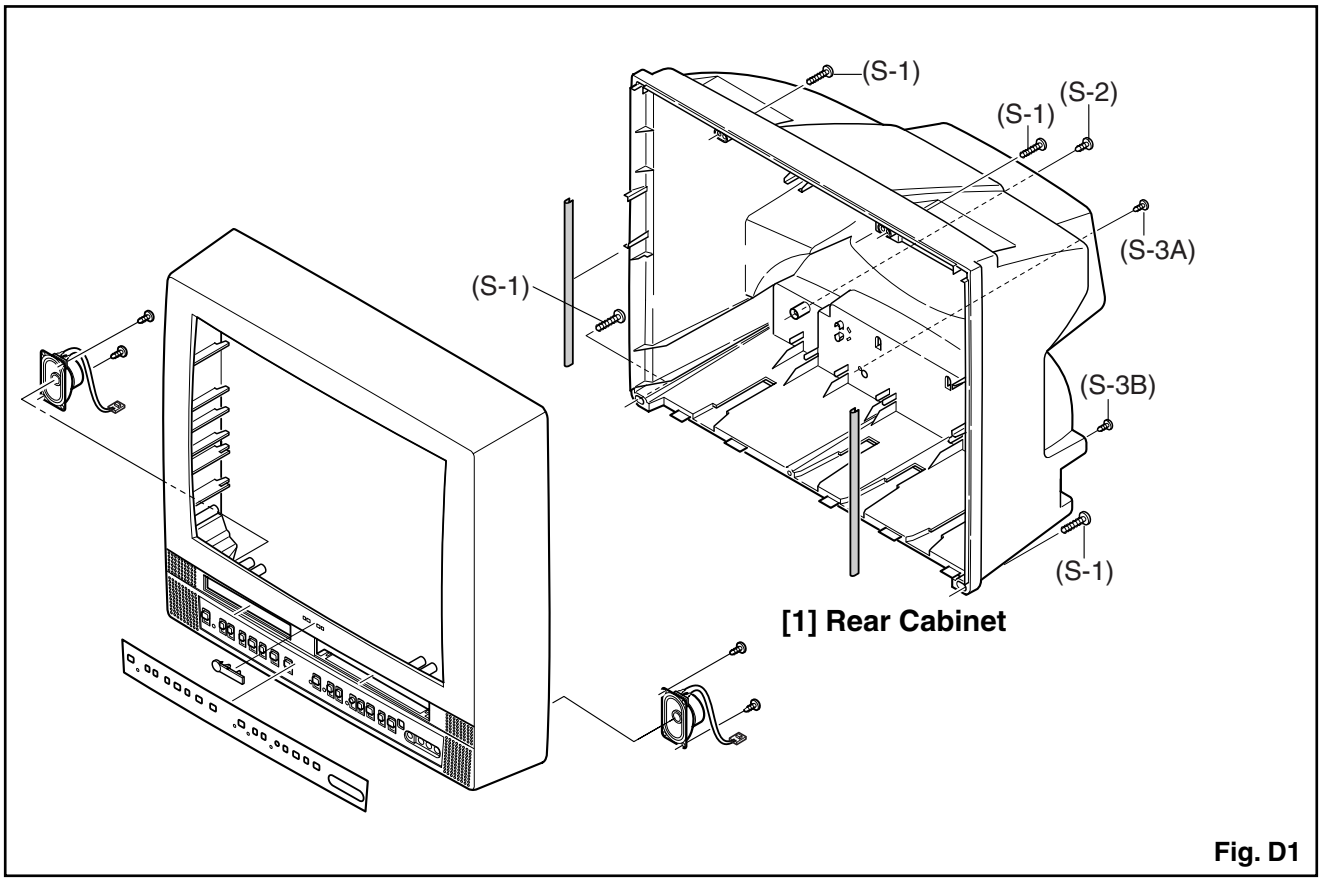
CAUTION!

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

1. **CAUTION 1:** Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

   Disconnect the following: Anode Cap, CN2501, CRT CBA, CN1601, CN3802, CN2571 and CN3801. Then remove Tray Chassis Unit.

2. **CAUTION 2:** Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc., during unpacking or repair work.
   To avoid damage of pickup follow next procedures.
   1) Disconnect Connector (CN301) on the DVD Main CBA Unit.
   2) Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)
   3) Remove DVD Mechanism.
3. **CAUTION 3:** When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)
4. Remove three screws (S-7) and remove Top Shield. Remove screws 5(S-8), (S-9) and (S-10). Then, desolder connectors (CL1201, CL1401, CL1402, CL1403) and lift up the Deck Assembly.



[1] Rear Cabinet

Fig. D1

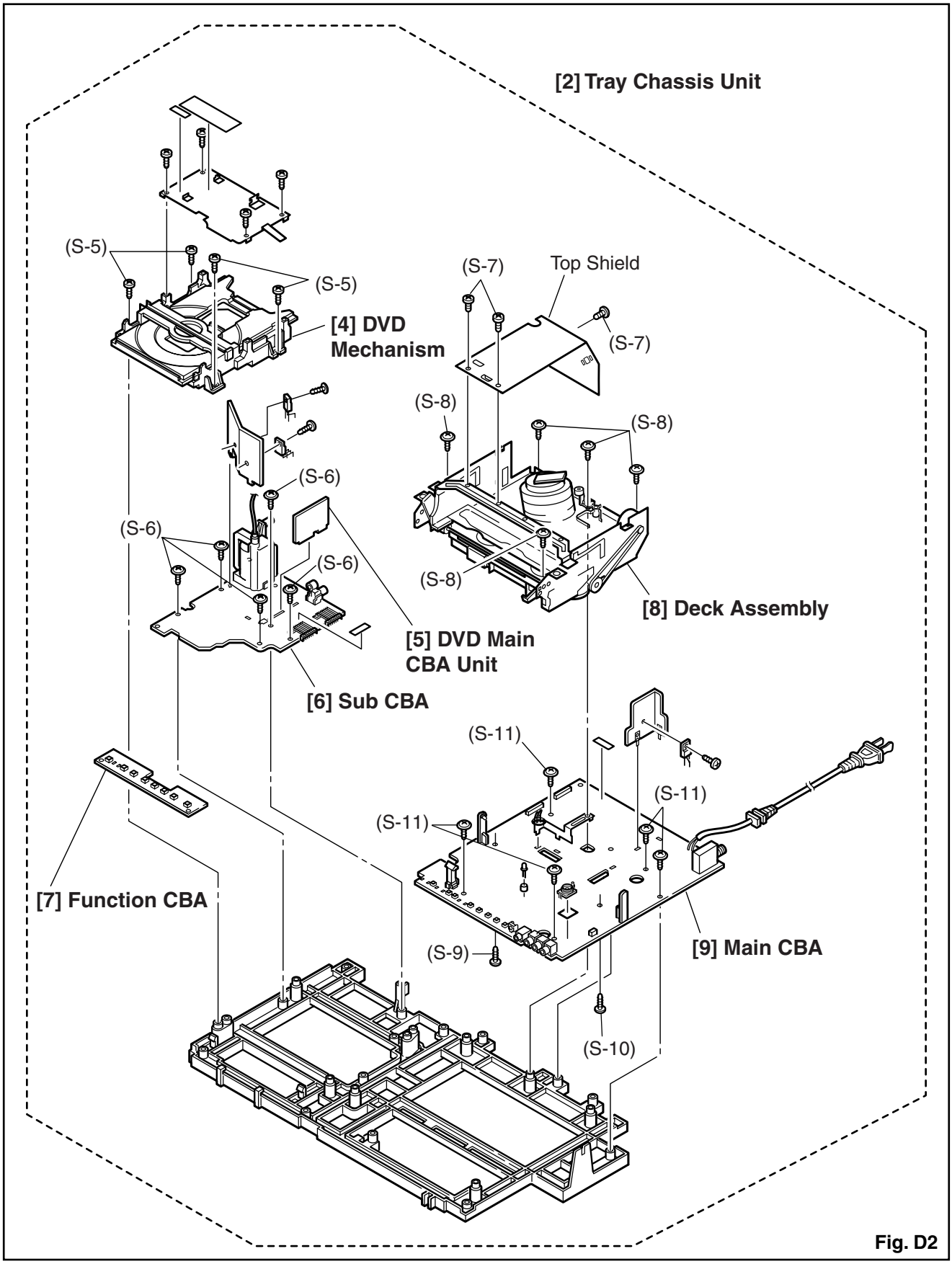

[2] Tray Chassis Unit
(S-5)
(S-5)
[4] DVD Mechanism
(S-7)
Top Shield
(S-7)
(S-8)
(S-8)
(S-8)
(S-6)
(S-6)
(S-6)
[8] Deck Assembly
[5] DVD Main CBA Unit
[6] Sub CBA
(S-11)
(S-11)
(S-11)
[7] Function CBA
[9] Main CBA
(S-9)
(S-10)

Fig. D2

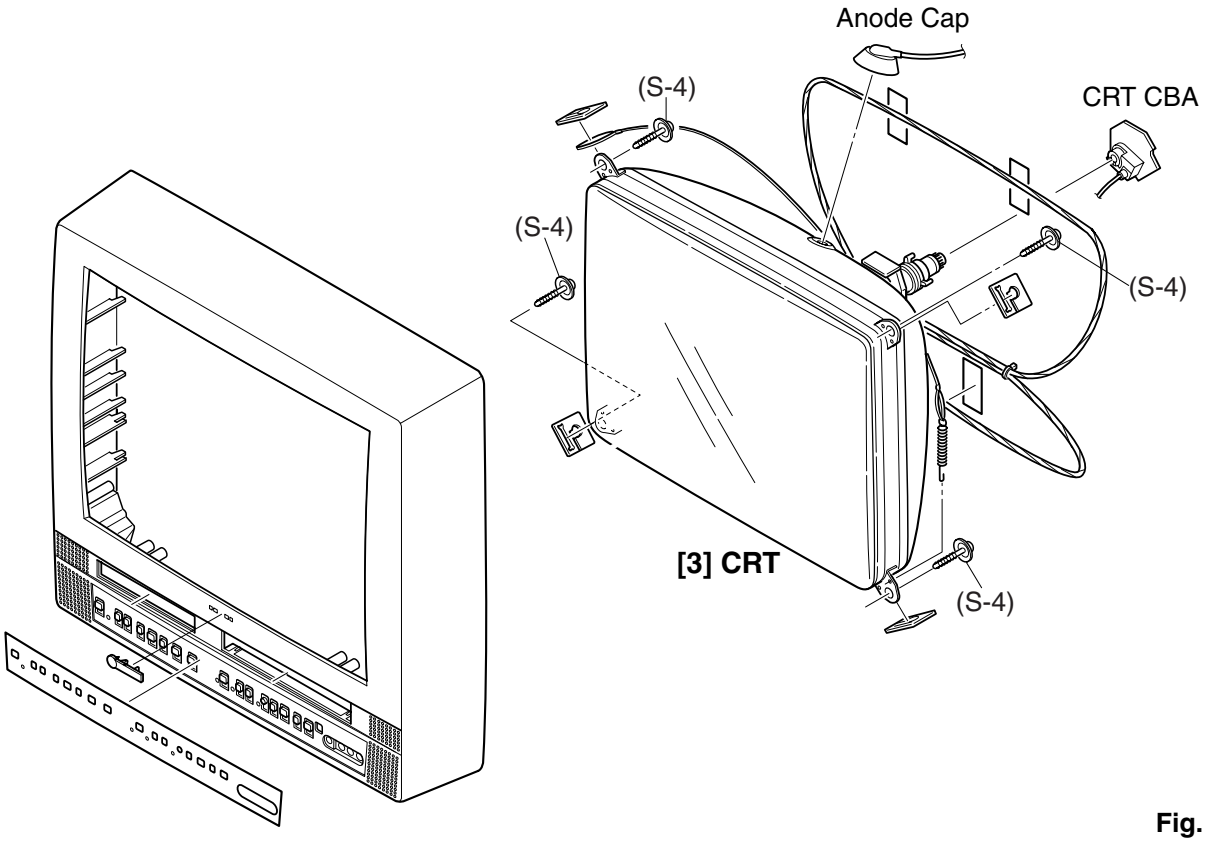
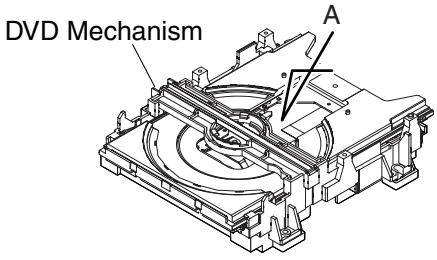

Anode Cap
(S-4)
CRT CBA
(S-4)
(S-4)
[3] CRT
(S-4)

Fig. D3


DVD Mechanism
A

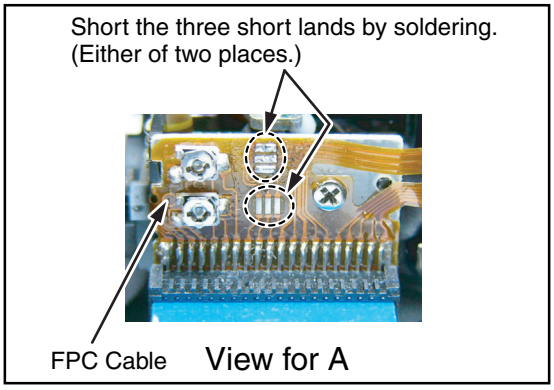

Short the three short lands by soldering.
(Either of two places.)
FPC Cable
View for A

Fig. D4

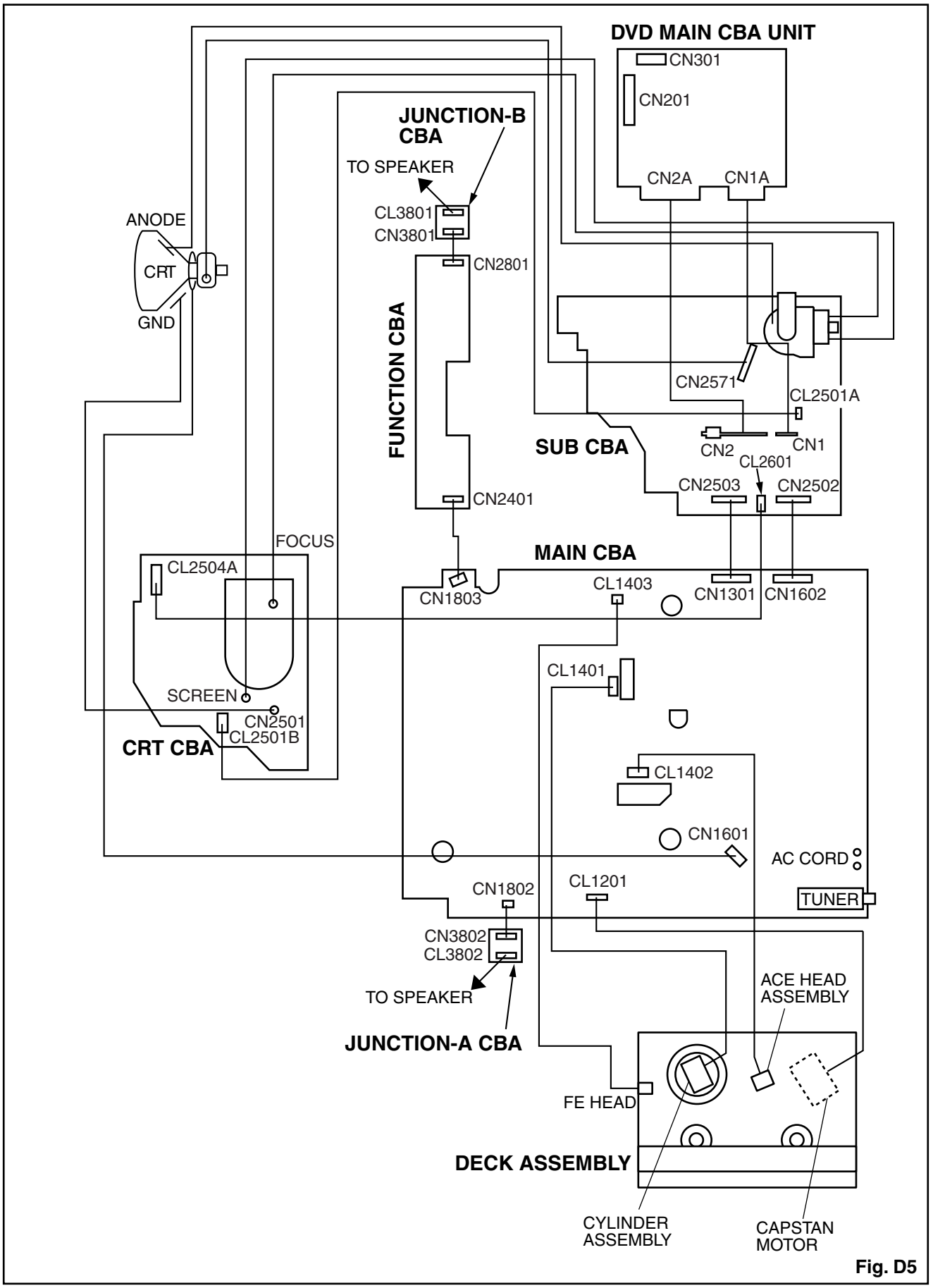

DVD MAIN CBA UNIT
CN301
CN201
CN2A
CN1A
JUNCTION-B CBA
TO SPEAKER
CL3801
CN3801
ANODE
CRT
GND
CN2801
FUNCTION CBA
CN2571
CL2501A
SUB CBA
CN2
CN1
CL2601
CN2503
CN2502
CN2401
FOCUS
MAIN CBA
CL2504A
CN1803
CL1403
CN1301
CN1602
CL1401
SCREEN
CN2501
CL2501B
CRT CBA
CL1402
CN1601
AC CORD
CN1802
CL1201
TUNER
CN3802
CL3802
TO SPEAKER
ACE HEAD ASSEMBLY
JUNCTION-A CBA
FE HEAD
DECK ASSEMBLY
CYLINDER ASSEMBLY
CAPSTAN MOTOR

Fig. D5

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is abbreviation for "Circuit Board Assembly."

Note: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. AC Milli Voltmeter (RMS)
3. Alignment Tape (FL8A, FL8N), Blank Tape
4. DC Voltmeter
5. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50 V/Div,
   F-Range: DC~AC-60 MHz
6. Frequency Counter
7. Plastic Tip Driver
8. Color Analyzer

How to make service remote control unit:

1. Prepare normal remote control unit (Part No. NE204UD or NE209UD). Remove 4 screws from the back lid (Fig. 1).

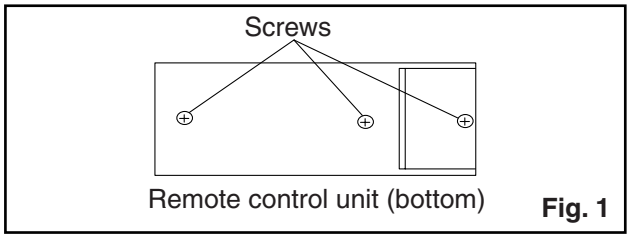


Fig. 1

2. Cut off pin 10 of the remote control microprocessor and short circuit pins 10 and 17 of the microprocessor with a jumper wire

How to enter the Service mode:

Service mode:

1. Use the service remote control unit.
2. Turn the power on. (Use main power on the TV unit.)
3. To enter the TV mode, press [CH. ▲ / ▼] buttons on the TV unit.
4. Press [DISC MENU] button on the service remote control unit. Version of micro computer will display on the CRT. (Ex: 057-001)

X-Ray Protection Test

X-Ray protection test should be done when replacing any parts of this chassis.

1. Short both ends of R2592 (on Sub CBA).
2. Confirm that the main power turns off.
3. If the main power does not turn off, then replace the following parts (D2591, Q2591, R2592, R2593, R2594 and IC1201).
4. Perform steps 1 to 3 again.

1. DC 114V (+B) Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and unit does not operate correctly.

Test Point	Adj. Point	Mode	Input
TP2501(+B) TP2504(GND)	VR1601	---	---
Tape	**M. EQ.**	**Spec.**	
---	DC Voltmeter	+114±1.0 V DC	

Note: TP2501(+B), TP2504(GND) --- Sub CBA, VR1601 --- Main CBA

1. Connect the unit to AC Power Outlet.
2. Connect DC Volt Meter to TP2501(+B) and TP2504(GND).
3. Adjust VR1601 so that the voltage of TP2501(+B) becomes +114±1.0 V DC.

2. Setting for CONTRAST, COLOR, TINT, V-TINT and SHARP Data Values

General

1. Enter the Service mode. (See page 1-7-1.)
2. Press [PICTURE] button on the service remote control unit. Display changes “BRT,” “CNT,” “COL,” “TNT,” “V-T,” and “SHP” cyclically when [PICTURE] button is pressed.

CONTRAST (CNT)

1. Press [PICTURE] button on the service remote control unit. Then select “CONTRAST (CNT)” display.
2. Press [CH. ▲ / ▼] buttons on the service remote control unit so that the value of “CONTRAST (CNT)” becomes 84.

COLOR (COL)

1. Press [PICTURE] button on the service remote control unit. Then select “COLOR (COL)” display.
2. Press [CH. ▲ / ▼] buttons on the service remote control unit so that the value of “COLOR (COL)” becomes 58.

TINT (TNT)

1. Press [PICTURE] button on the service remote control unit. Then select “TINT (TNT)” display.
2. Press [CH. ▲ / ▼] buttons on the service remote control unit so that the value of “TINT (TNT)” becomes 50.

V-TINT (V-T)

1. Press [PICTURE] button on the service remote control unit. Then select “V-TINT (V-T)” display.
2. Press [CH. ▲ / ▼] buttons on the service remote control unit so that the value of “V-TINT (V-T)” becomes 50.

SHARP (SHP)

1. Press [PICTURE] button on the service remote control unit. Then select “SHARP (SHP)” display.
2. Press [CH. ▲ / ▼] buttons on the service remote control unit so that the value of “SHARP (SHP)” becomes 46.

Note: **BRIGHT** data value does not need to be adjusted because this setting is performed in other setting.

3. H f_0 Adjustment

Purpose: To get correct horizontal position and size of screen image.

Symptom of Misadjustment: Horizontal position and size of screen image may not be properly displayed.

Test Point	Adj. Point	Mode	Input
R2583	[CH. ▲ / ▼] buttons	Video	---
Tape	**M. EQ.**	**Spec.**	
---	Frequency Counter	15.734 kHz±300 Hz	

Note: R2583 --- Sub CBA

1. Connect frequency counter to R2583.
2. Operate the unit for at least 20 minutes.
3. Enter the Service mode. (See page 1-7-1.) Press [2] button on the remote control unit and select H-ADJ mode.
4. Press [CH. ▲ / ▼] buttons on the remote control unit so that the display will change “0” to “7.”
5. At this moment, choose display “0” to “7” when the frequency counter display is closest to 15.734 kHz ± 300 Hz.

4. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test Point	Adj. Point	Mode	Input
---	Screen-Control [CH. ▲ / ▼] buttons	RF	Black Raster
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See Reference Notes below.	

Figure

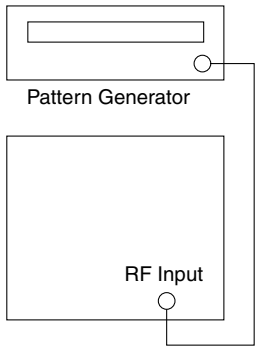


Fig. 2

Notes: Screen Control --- FBT (Sub CBA),
FBT = Fly Back Transformer,
Use the Remote Control Unit.

1. Degauss the CRT and allow the unit to operate for 20 minutes before starting the alignment.
2. Input the Black raster signal from RF input.
3. Enter the Service mode. (See page 1-7-1.)
4. Press the [VOL ▼] button.
(Press [VOL ▼] button then display will change "C/D", "7F" and Initial Setting.)
5. Choose CUT OFF/DRIVE mode then press [1] button. This adjustment mode is CUT OFF (R).
6. Increase the screen control so that the horizontal line just appears on the CRT.
7. Press the [CH. ▲ / ▼] buttons until the horizontal line becomes white.
8. Choose CUT OFF/DRIVE mode then press [2] button. This adjustment mode is CUT OFF (G). Press [CH. ▲ / ▼] buttons until the horizontal line becomes white.
9. Choose CUT OFF/DRIVE mode then press [3] button. This adjustment mode is CUT OFF (B). Press [CH. ▲ / ▼] buttons until the horizontal line becomes white.

5. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	[CH. ▲ / ▼] buttons	RF	White Raster (APL 100%)
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator, Color analyzer	See below	

Figure

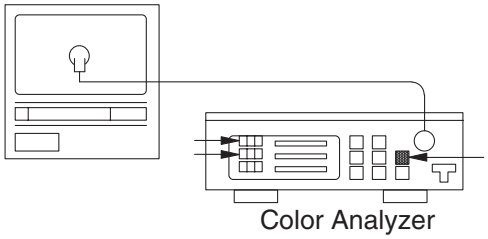


Fig. 3

Note: Use service remote control unit

1. Operate the unit more than 20 minutes.
2. Face the unit to the east. Degauss the CRT using a degaussing coil.
3. Input the White Raster (APL 100%).
4. Set the color analyzer to the CHROMA mode and after zero point calibration, bring the optical receptor to the center on the tube surface (CRT).
5. Enter the Service mode. Press [VOL ▼] button on the service remote control unit and select "C/D" mode. (Display changes "C/D", "7F" and Initial Setting cyclically when [VOL ▼] button is pressed.)
6. Press [4] button on the service remote control unit for Red adjustment. Press [5] button on the service remote control unit for Blue adjustment.
7. In each color mode, press [CH. ▲ / ▼] buttons to adjust the values of color.
8. Adjust Red and Blue color so that the temperature becomes 9200K (x: 286 / y: 294) ±3%.
9. At this time, re-check that horizontal line is white. If not, re-adjust Cut-off Adjustment until the horizontal line becomes pure white.
10. Turn off and on again to return to normal mode. Receive APL 100% white signal and confirm that Chroma temperatures become 9200K (x: 286 / y: 294) ±3%.

Note: Confirm that Cut Off Adj. is correct after this adjustment, and attempt Cut Off Adj. if needed.

6. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test Point	Adj. Point	Mode	Input
---	[CH. ▲ / ▼] buttons	---	SMPTE 7.5IRE
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	

Figure

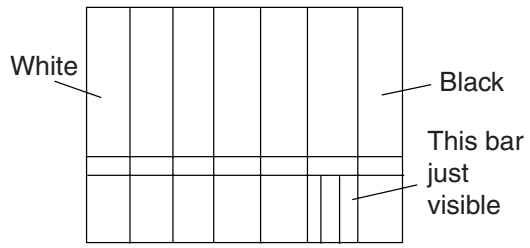


Fig. 4

Note: SMPTE Setup level --- 7.5 IRE

1. Enter the Service mode. (See page 1-7-1.) Then input SMPTE signal from RF input.
2. Press [PICTURE] button. (Press [PICTURE] button then display will change BRT, CNT, COL, TNT, V-T, and SHP). Select BRT and press [CH. ▲ / ▼] buttons so that the bar is just visible (See above figure).

7. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test Point	Adj. Point	Mode	Input
---	Focus Control	---	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	

Note: Focus VR --- FBT (Sub CBA),
FBT = Fly Back Transformer

1. Operate the unit more than 30 minutes.
2. Face the unit to the East and degauss the CRT using a degaussing coil.
3. Input the monoscope pattern.
4. Adjust the Focus Control on the FBT to obtain a clear picture.

8. H. Position Adjustment

Purpose: To obtain correct horizontal position of screen image.

Symptom of Misadjustment: H. position may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	[CH. ▲ / ▼] buttons	---	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	---	

1. Enter the Service mode. (See page 1-7-1.) Press [8] button on the remote control unit and select H-P mode.
2. Input monoscope pattern.
3. Press [CH. ▲ / ▼] buttons on the remote control unit so that the left and right side of the monoscope pattern are equal to each other.

9. V. Shift Adjustment

Purpose: To obtain correct vertical position of screen image.

Symptom of Misadjustment: If V. position is incorrect, vertical position of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	[CH. ▲ / ▼] buttons	---	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	---	

1. Enter the Service mode. (See page 1-7-1.) Press [9] button on the remote control unit and select V-P mode. (Press [9] button then display will change to V-P and V-S).
2. Input monoscope pattern.
3. Press [CH. ▲ / ▼] buttons on the remote control unit so that the top and bottom of the monoscope pattern are equal to each other.

10. V. Size Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	[CH. ▲ / ▼] buttons	---	Monoscope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	90±5%	

1. Enter the Service mode. (See page 1-7-1.) Press [9] button on the remote control unit and select V-S mode. (Press [9] button then display will change to V-P and V-S).
2. Input monoscope pattern.
3. Press [CH. ▲ / ▼] buttons on the remote control unit so that the monoscope pattern is 90±5% of display size and the circle is round.

11. Head Switching Position Adjustment

Purpose: Determine the Head Switching Position during Playback.

Symptom of Misadjustment: May cause Head Switching Noise or Vertical Jitter in the picture.

Note: Unit reads Head Switching Position automatically and displays it on the screen (Upper Left Corner).

1. Playback test tape (FL8A, FL8N).
2. Enter the Service mode. (See page 1-7-1.) Then press the number [5] button on the remote control unit.
3. The Head Switching position will display on the screen; if adjustment is necessary follow step 4. 6.5H(412.7µs) is preferable.
4. Press [CH. ▲] or [CH. ▼] button on the remote control unit if necessary. The value will be changed in 0.5H steps up or down. Adjustable range is up to 9.5H. If the value is beyond adjustable range, the display will change as:
   Lower out of range: 0.0H
   Upper out of range: -.-H

The following 2 adjustments normally are not attempted in the field. They should be done only when replacing the CRT then adjust as a preparation.

12. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	*Red Color
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	
Figure			

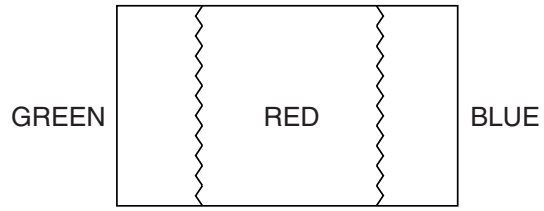


Fig. 5

* This becomes RED COLOR if the [7] button is pressed while in service mode.

1. Set the unit facing east.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Set the unit to the AUX mode which is located before CH2 then input a red raster from video in.
5. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 6.)
6. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 5, 6.)
7. Slowly push the Deflection Yoke toward the bell of the CRT and set it where a uniform red field is obtained.
8. Tighten the clamp screw on the Deflection Yoke.

13. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adj. Point	Mode	Input
---	C.P. Magnet (RB) C.P. Magnet (RB-G) Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	
Figure			

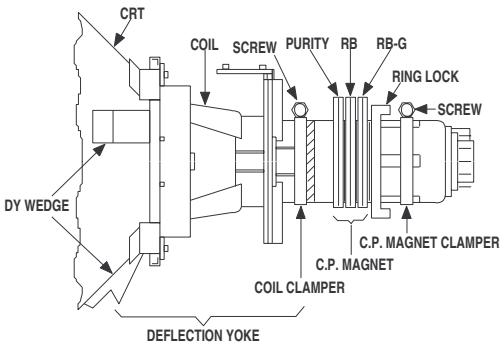


Fig. 6

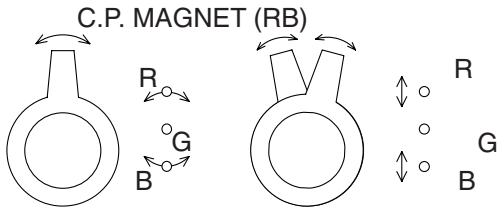


Fig. 7

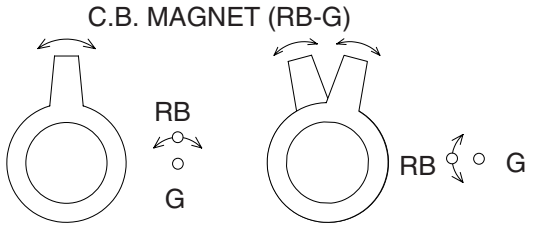


Fig. 8

1. Set the unit to the AUX mode which is located before CH2 then input a dot or crosshatch pattern.
2. Loosen the Ring Lock and align red with blue dots or crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 7.)
3. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 8.)

4. Fix the C.P. Magnets by tightening the Ring Lock.
5. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
6. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

HOW TO INITIALIZE THE TV/DVD/VCR

To put the program back at the factory-default, initialize the TV/DVD/VCR as the following procedure.

< DVD Section >

1. Turn the power on and press [SELECT] button on the remote control unit to put the TV/DVD/VCR into DVD mode.
2. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. a appears on the screen.

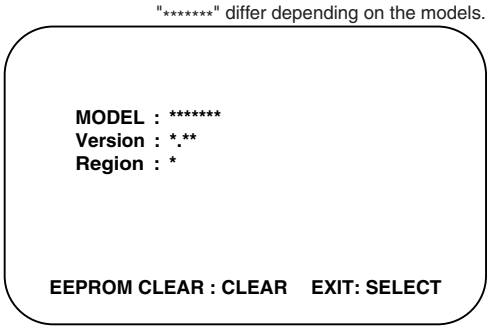


Fig. a

3. Press [CLEAR] button on the remote control unit.
   Fig. b appears on the screen.

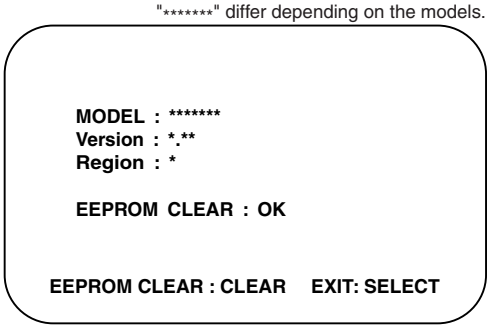


Fig. b

   When “OK” appears on the screen, the factory default will be set.
4. To exit this mode, press [CH. ▲ / ▼] or [SELECT] button to go to TV mode, or press [STANDBY-ON] button to turn the power off.

< TV/VCR Section >

1. Use the service remote control unit.
2. Turn the power on. (Use main power on the TV unit.)
3. Press [DISC MENU] button on the service remote control unit to enter the Service mode. (Refer to “How to enter the Service mode” on page 1-7-1.)
4. Press [VOL ▼] button on the service remote control unit twice, and confirm that OSD indication is “7F = FF.” If needed, set it to become “7F = FF” by pressing [CH. ▲ / ▼] buttons on the service remote control unit.
5. Confirm that OSD indication on the four corners on TV screen changes from on and off light indication to red by pressing a [DISPLAY] button. (It is necessary for one or two seconds.)
6. Turn the power off by pressing main power button on the TV unit, and unplug the AC cord from the AC outlet.

FIRMWARE RENEWAL MODE

1. Turn the power on and press [SELECT] button on the remote control unit to put the TV/DVD/VCR into DVD mode. Then remove the disc on the tray. (It is possible to move to F/W version up mode only when the TV/DVD/VCR is in DVD mode with the tray open.)
2. To put the TV/DVD/VCR into F/W version up mode, press [9], [8], [7], [6], and [MODE] buttons on the remote control unit in that order.
   Fig. a appears on the screen.

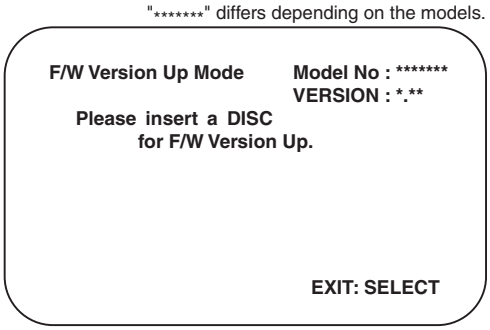


Fig. a Version Up Mode Screen

   The TV/DVD/VCR can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.

3. Load the disc for version up.
4. The TV/DVD/VCR enters the F/W version up mode automatically. Fig. b appears on the screen. If you enter the F/W for different models, “Disc Error” will appear on the screen, then the tray will open automatically.

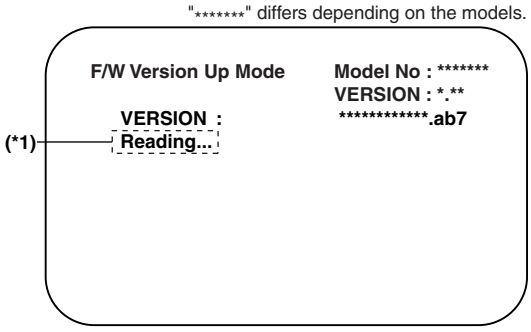


Fig. b Programming Mode Screen

   The appearance shown in (*1) of Fig. b is described as follows:

No.	Appearance	State
1	Reading...	Sending files into the memory
2	Erasing...	Erasing previous version data
3	Programming...	Writing new version data

5. After programming is finished, the tray opens automatically. Fig. c appears on the screen and the checksum will be shown in (*2) of Fig. c.

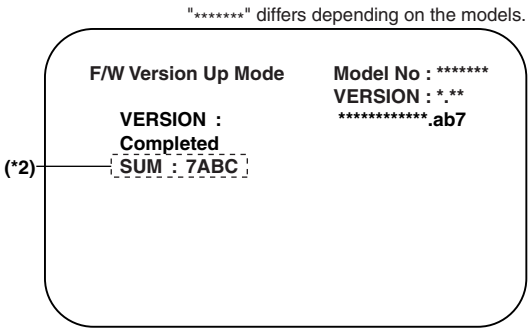


Fig. c Completed Program Mode Screen

   At this time, no button is available.

6. Remove the disc on the tray.
7. Press [SELECT] button on the remote control unit to go to TV mode, or press [STANDBY-ON] button on the unit to turn the power off.
8. Press [SELECT] button on the remote control unit to put the TV/DVD/VCR into DVD mode again.
9. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. d appears on the screen.

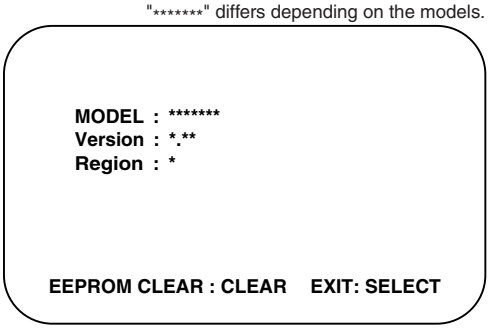


Fig. d

10. Press [CLEAR] button on the remote control unit.
    Fig. e appears on the screen.

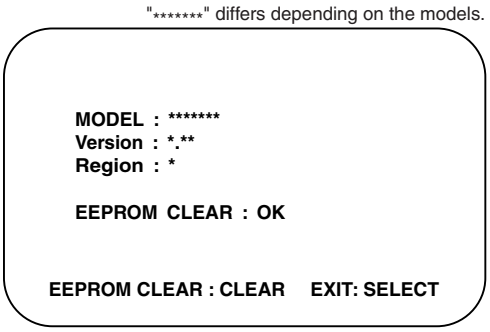


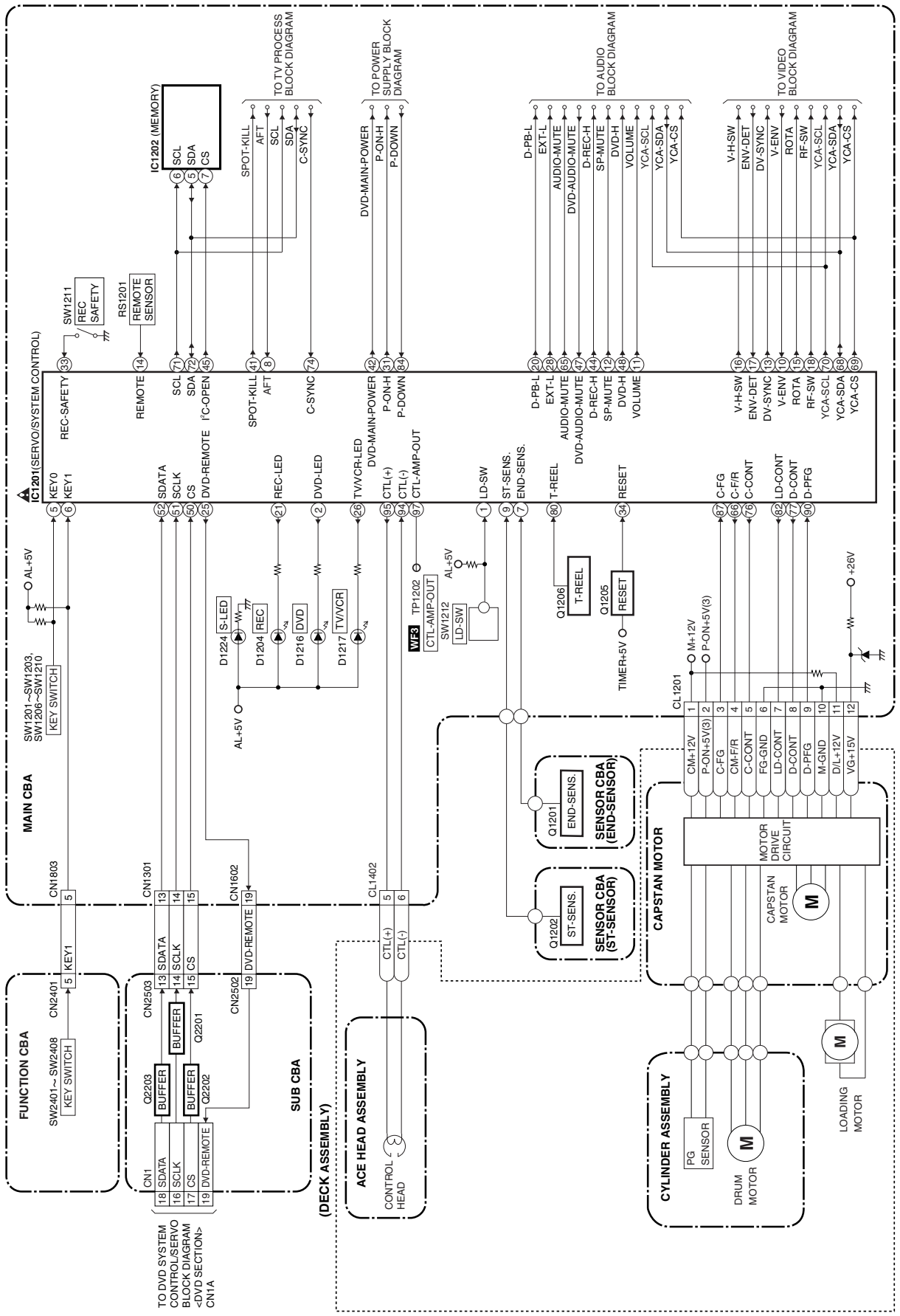
Fig. e

    When “OK” appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.

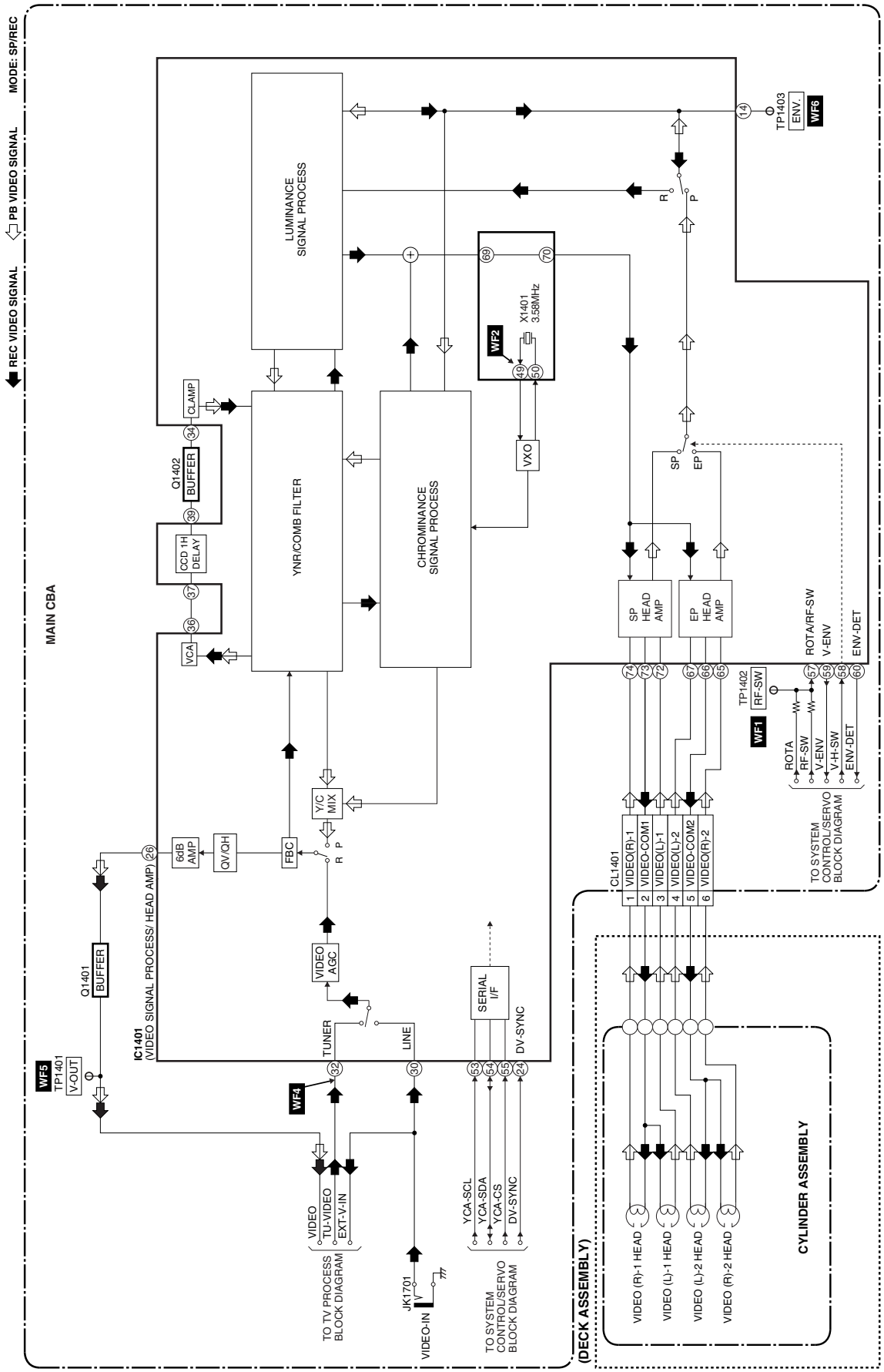
11. To exit this mode, press [CH. ▲ / ▼] or [SELECT] button to go to TV mode, or press [STANDBY-ON] button to turn the power off.

BLOCK DIAGRAMS < TV/VCR Section >

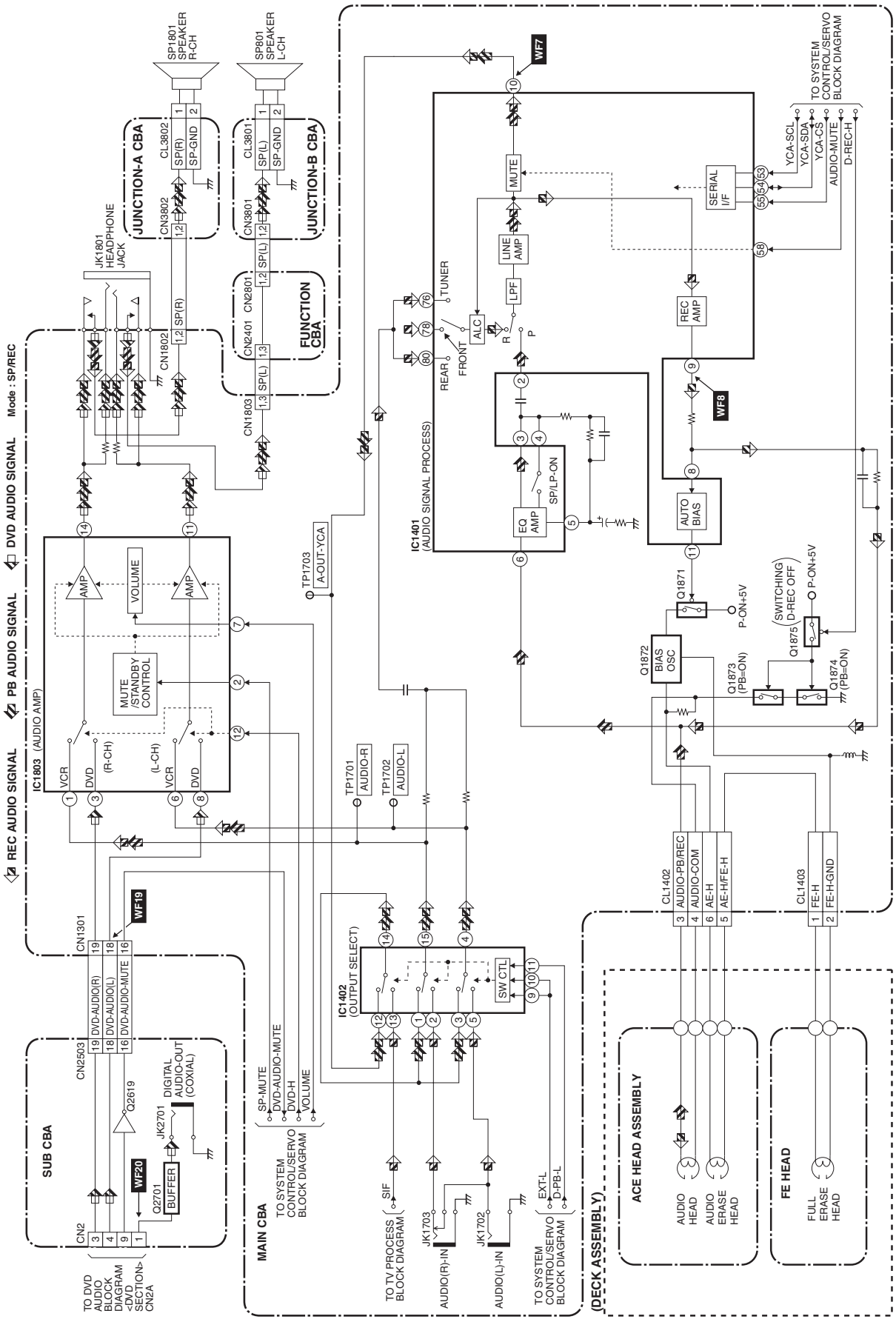
System Control / Servo Block Diagram



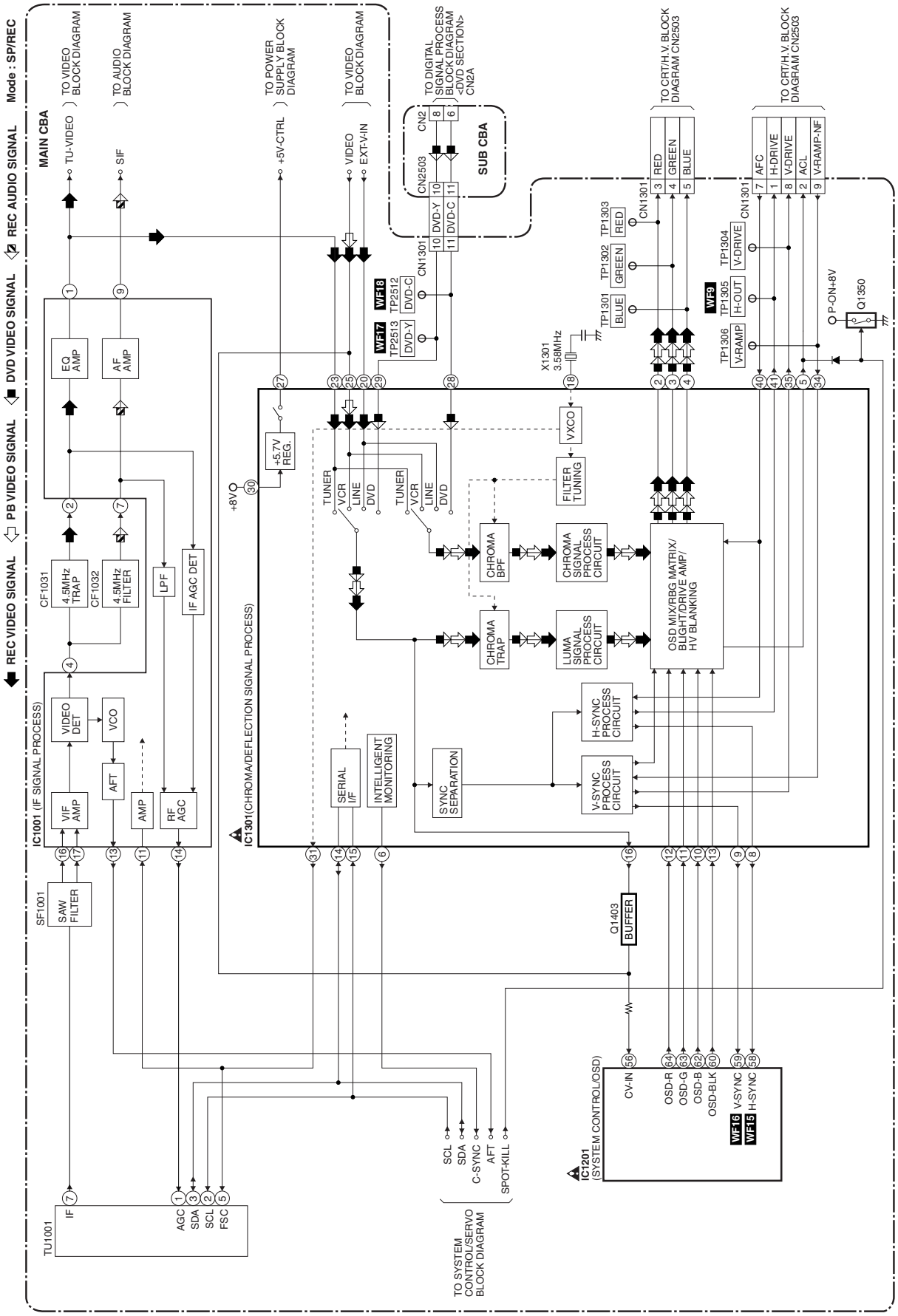
Video Block Diagram



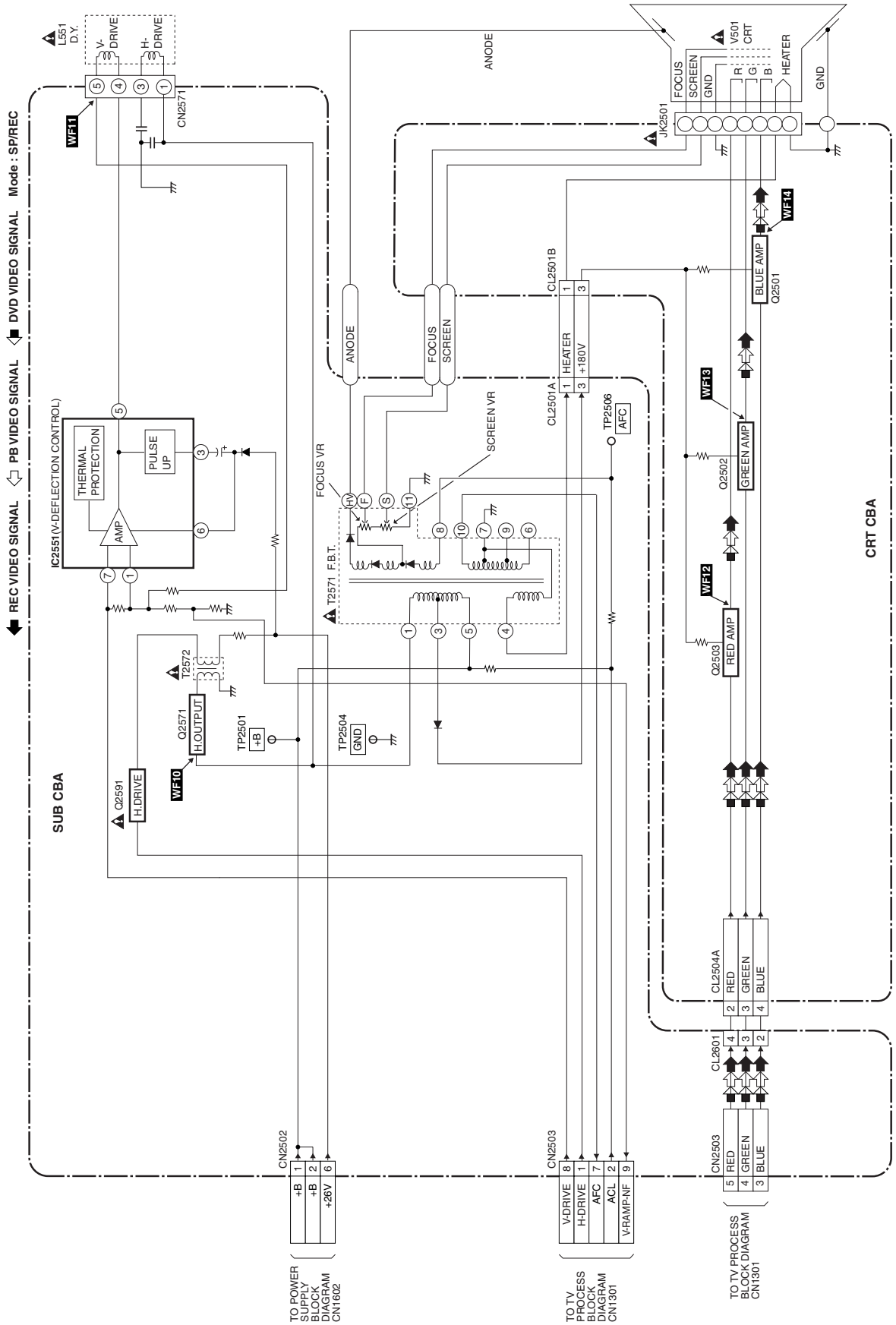
Audio Block Diagram



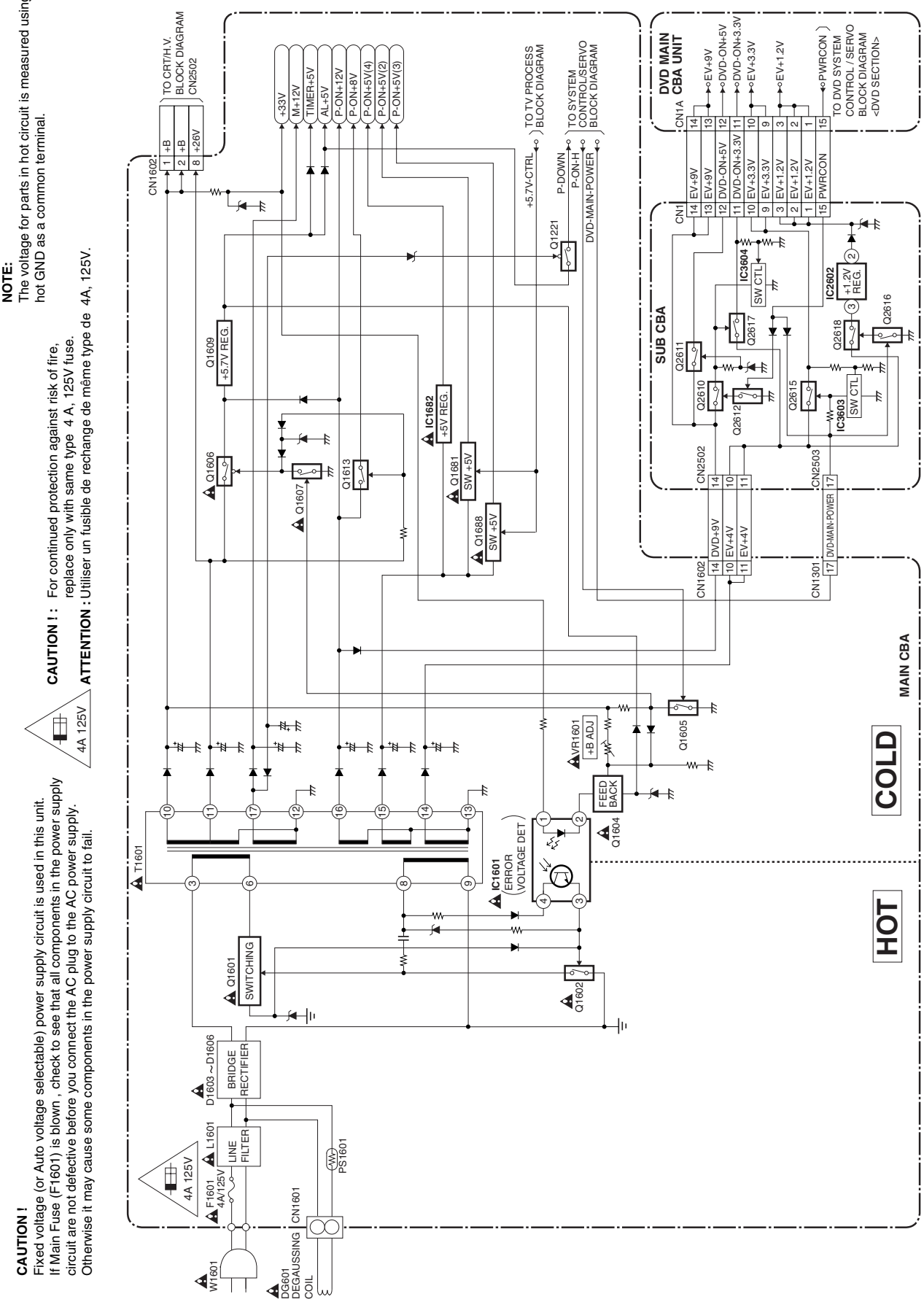
TV Process Block Diagram



CRT/H.V. Block Diagram

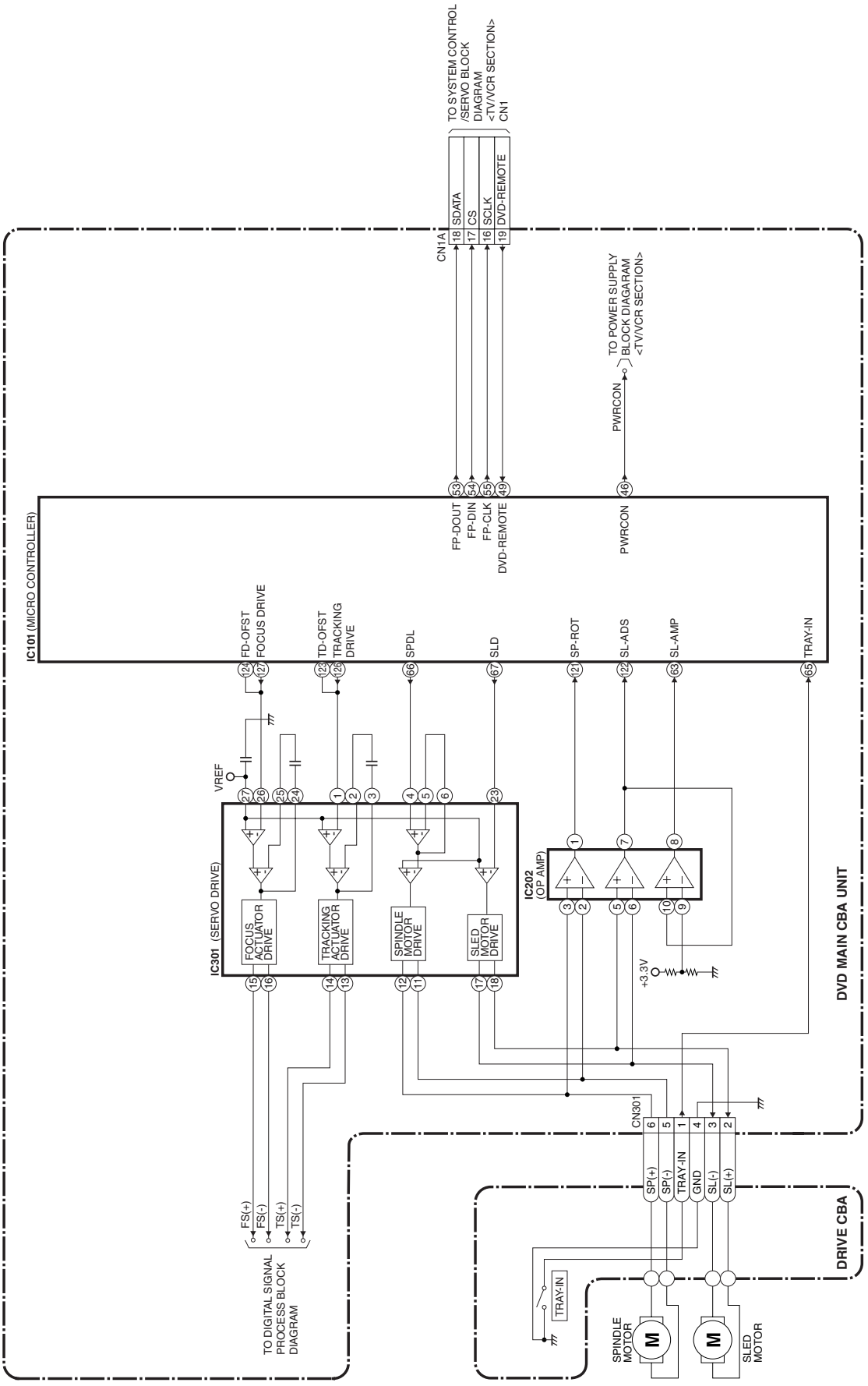


Power Supply Block Diagram

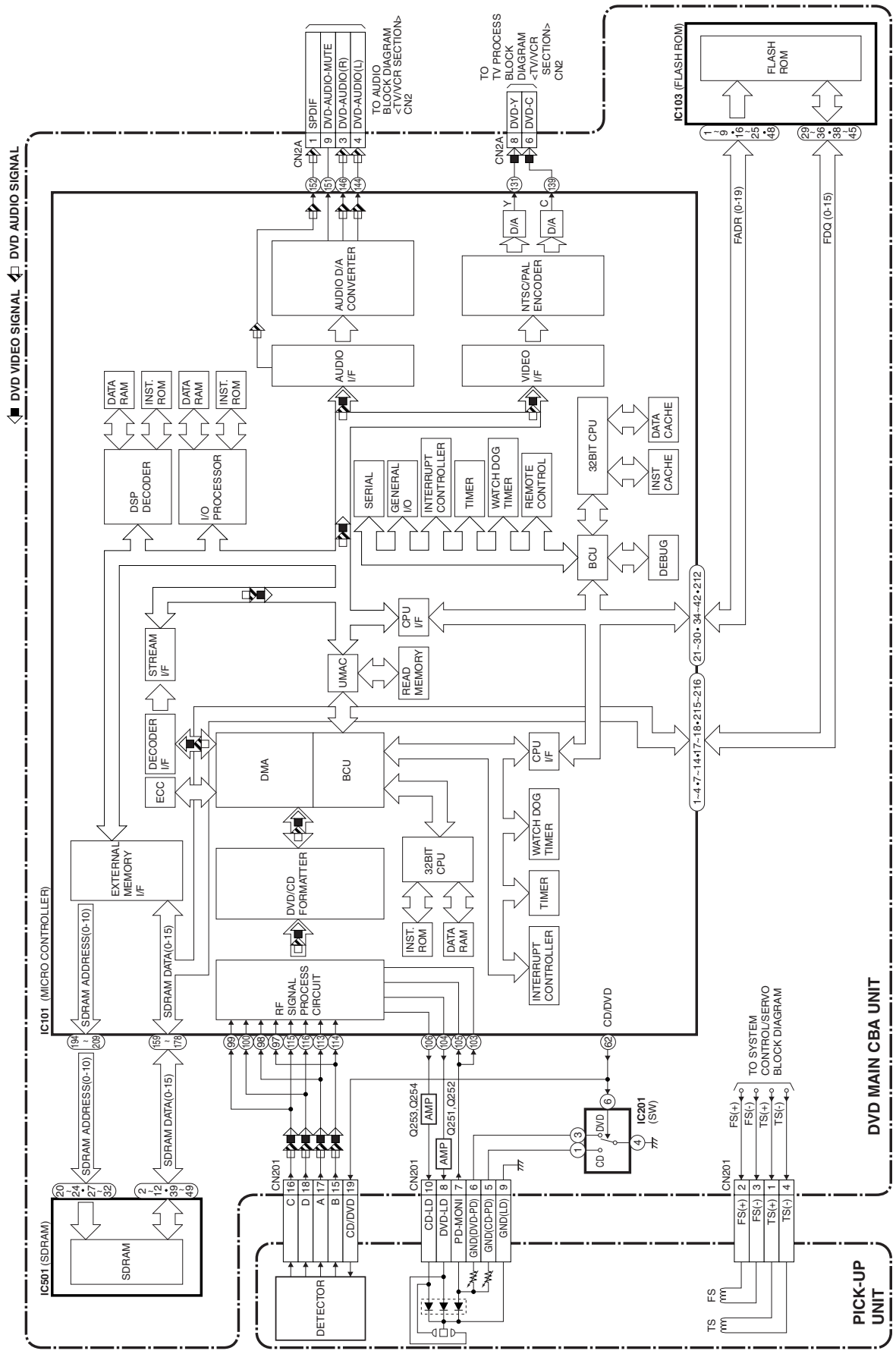


BLOCK DIAGRAMS < DVD Section >

DVD System Control / Servo Block Diagram



Digital Signal Process Block Diagram



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE_A,_V FUSE.
ATTENTION: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE_A,_V.

2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

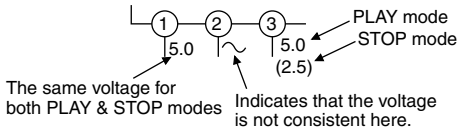
3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

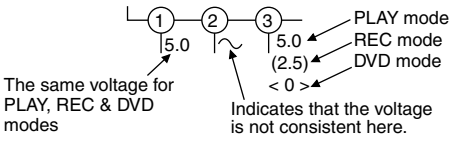
4. Mode: SP/REC

5. Voltage indications for PLAY and REC modes on the schematics are as shown below:

< DVD Section >



< TV/VCR Section >

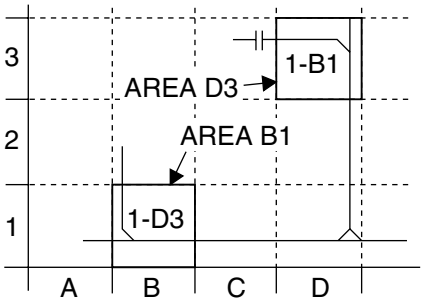


Unit: Volts

6. How to read converged lines

1-D3
- Distinction Area
- Line Number (1 to 3 digits)

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



7. Test Point Information

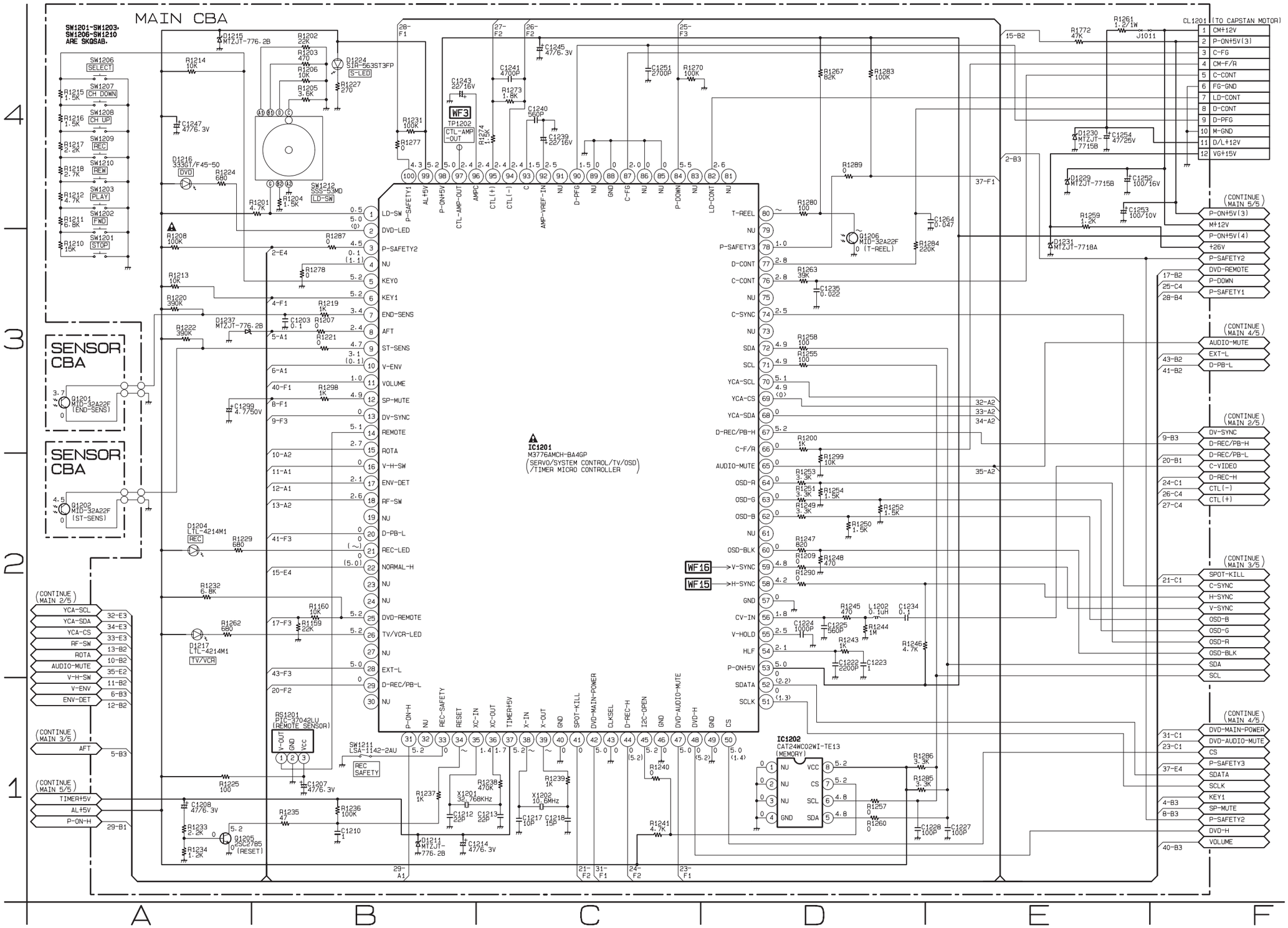
: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

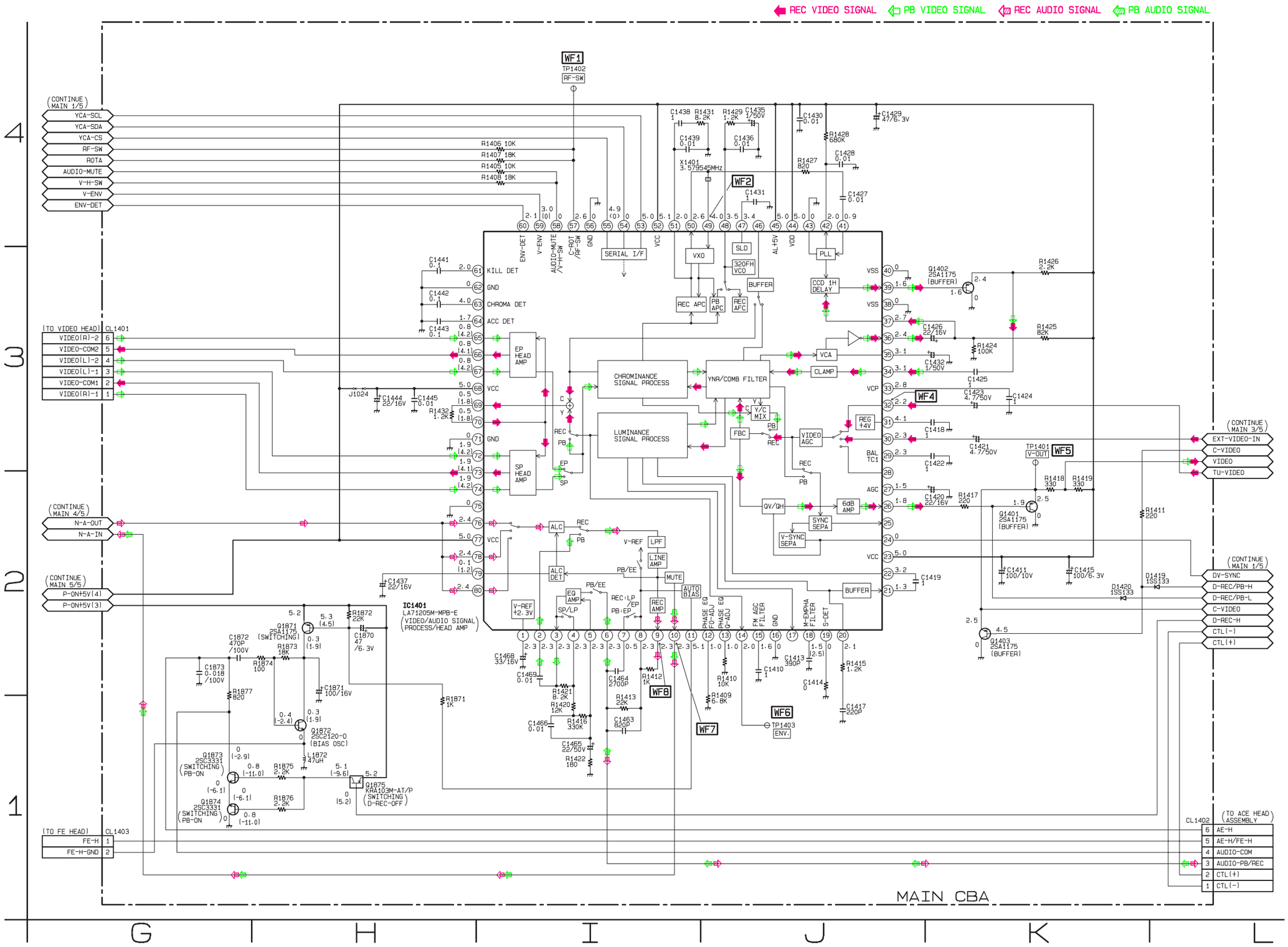
: Used to indicate a test point with a test pin.

Main 1/5 & Sensor Schematic Diagram < TV/VCR Section >



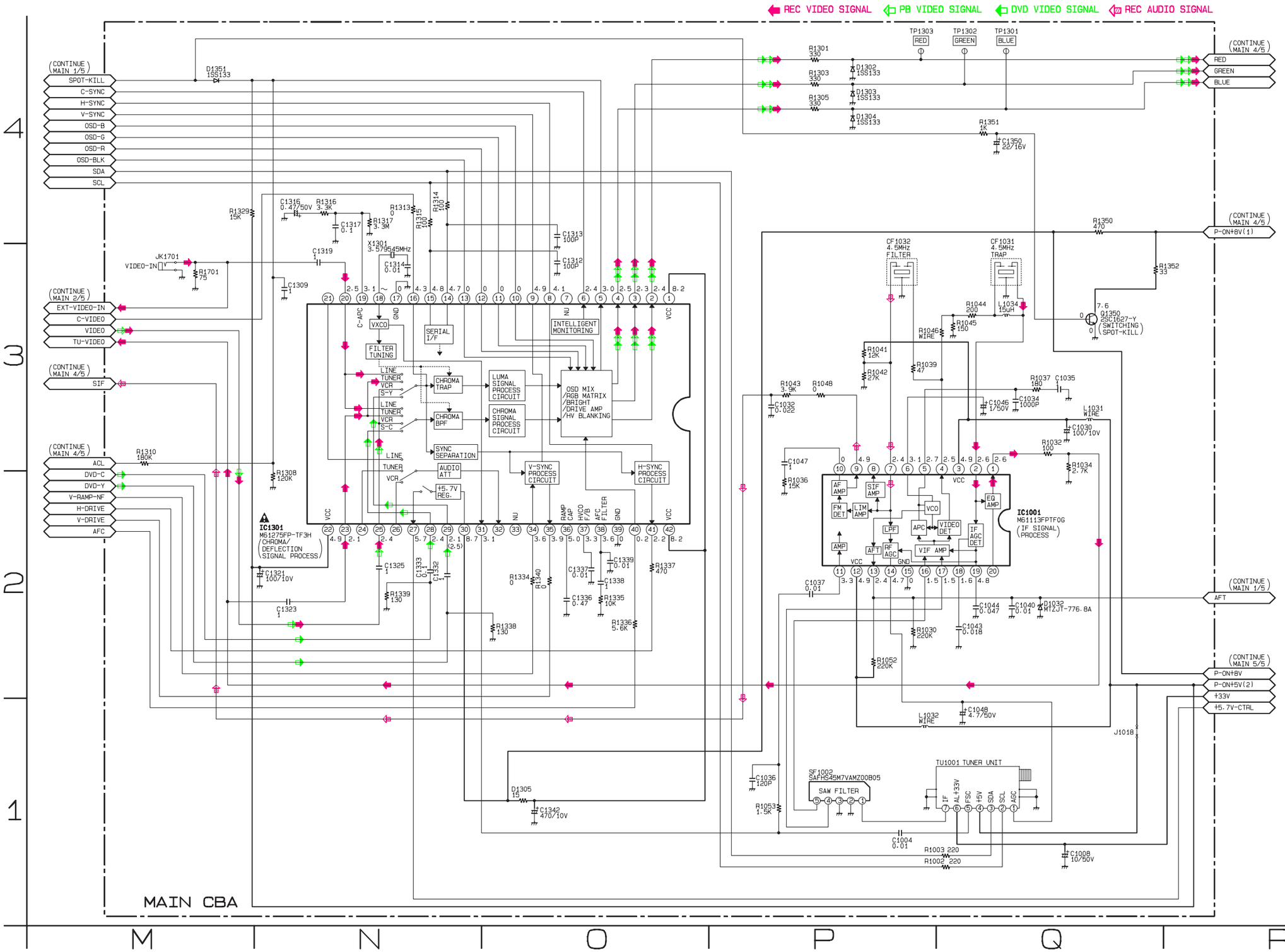
T1202SCM1

Main 2/5 Schematic Diagram < TV/VCR Section >



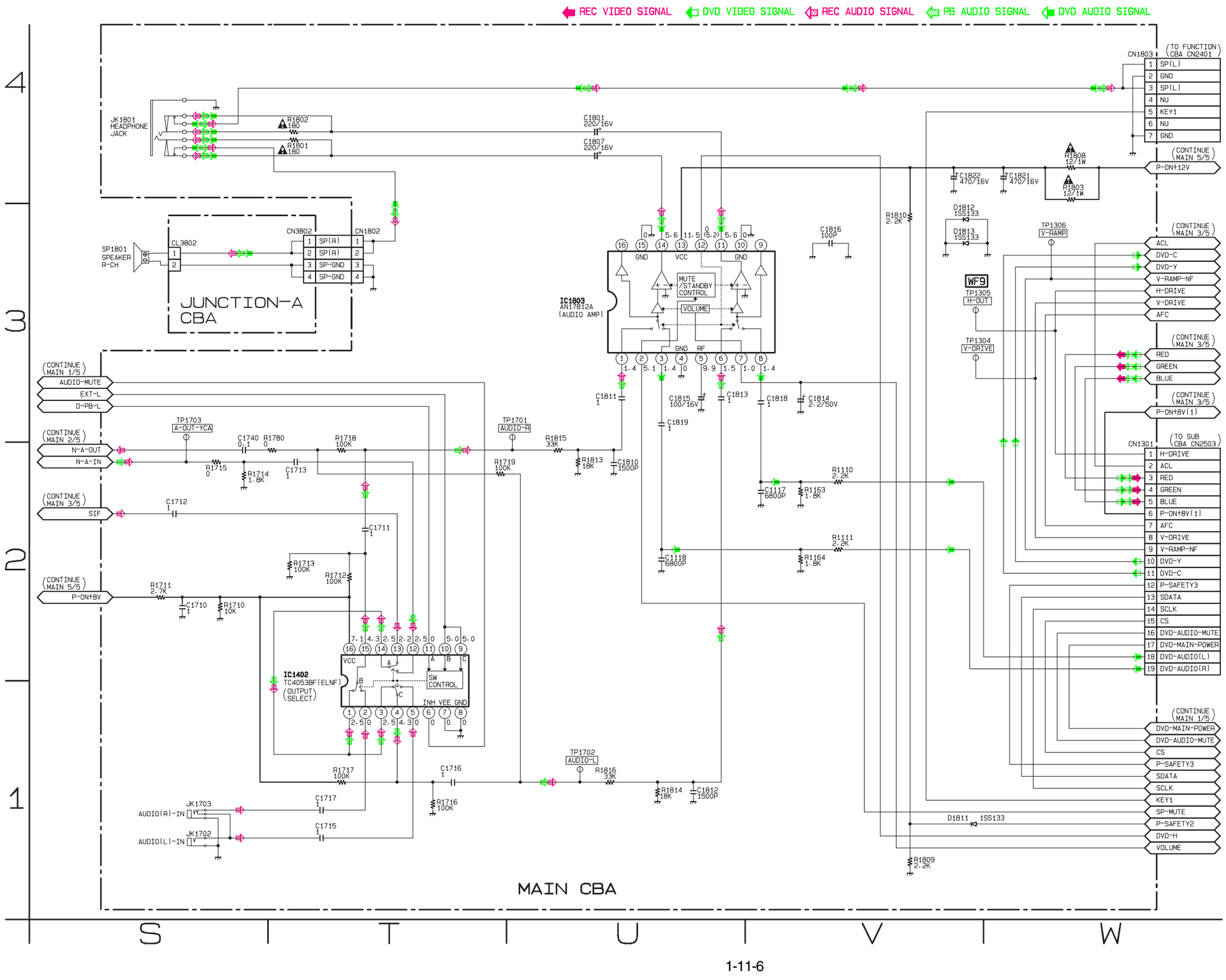
T1202SCM2

Main 3/5 Schematic Diagram < TV/VCR Section >



T1202SCM3

Main 4/5 & Junction-A Schematic Diagram < TV/VCR Section >



T1202SCM4

Main 5/5 Schematic Diagram < TV/VCR Section >

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

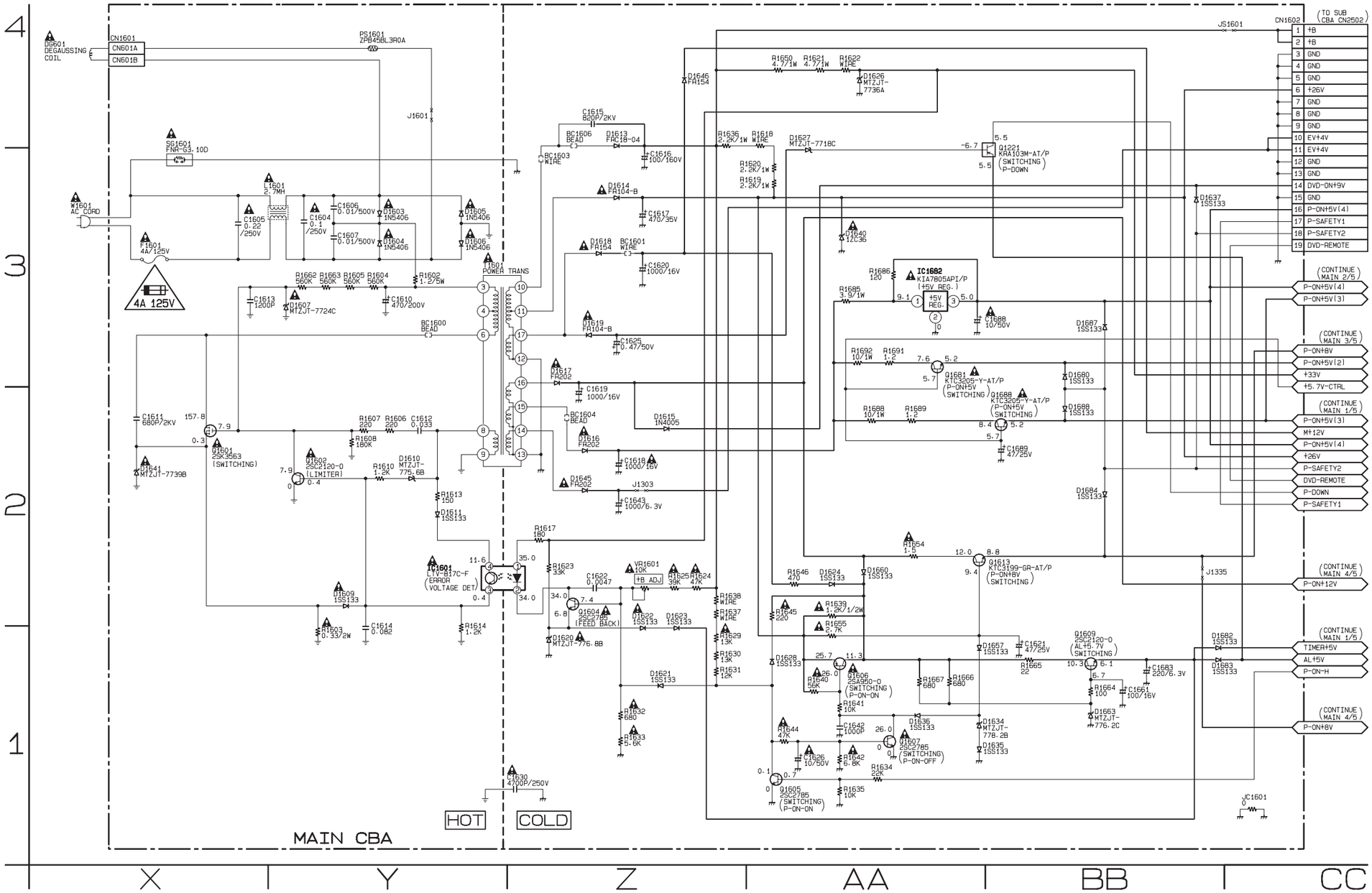
4A 125V

CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

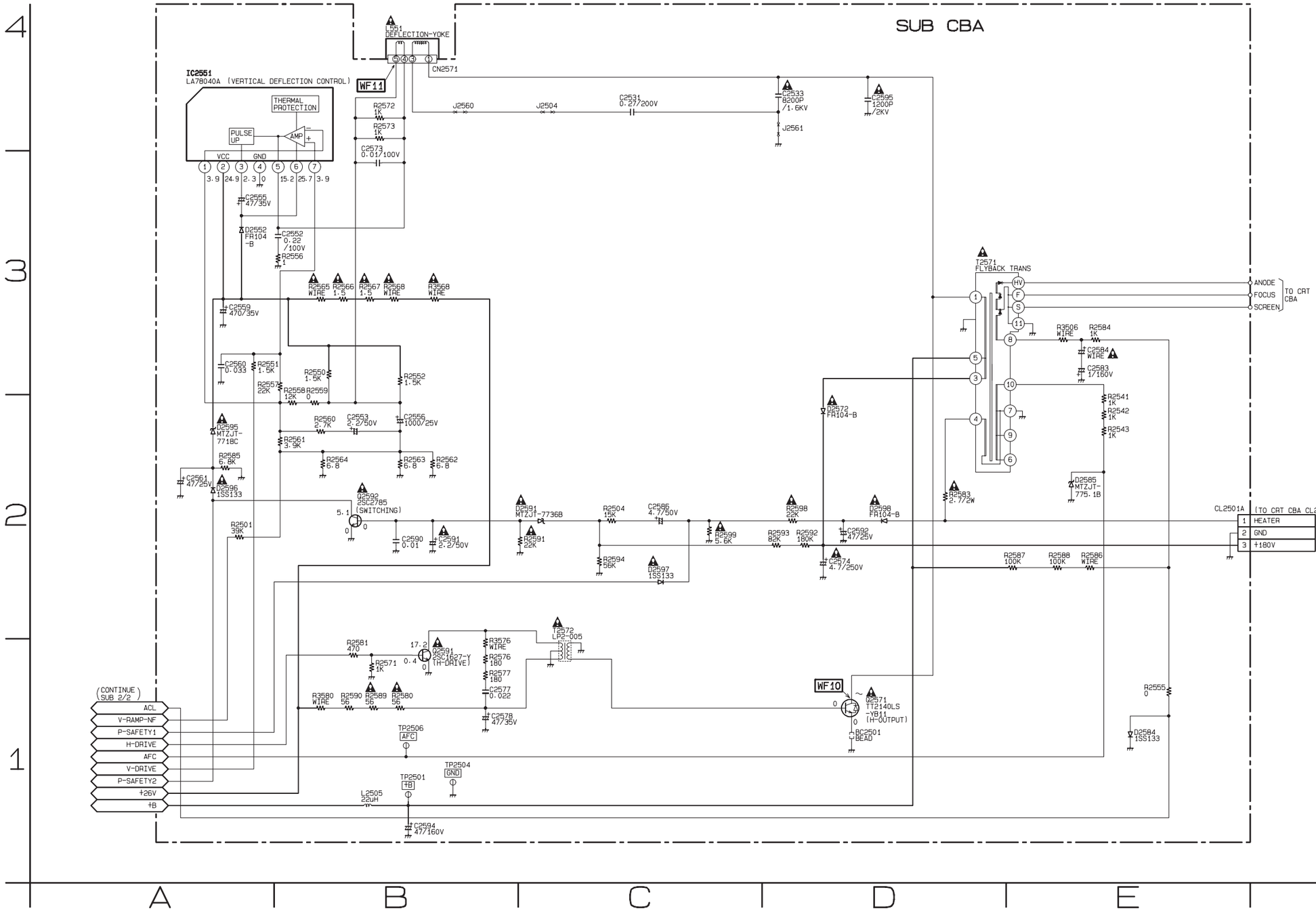
VOLTAGE CHART (Power off mode)

Ref. No.	1	2	3	4
IC1601	25.7	24.7	0.3	1.2
Ref. No.	1	2	3	
IC1682	3.2	0	1.7	
Ref. No.	S	D	G	
Q1601	0	162.8	1.9	
Ref. No.	E	C	B	
Q1221	5.2	5.1	4.6	
Q1602	0	1.9	0.3	
Q1604	6.7	24.7	7.3	
Q1605	0	7.9	0	
Q1606	8.5	8.5	7.8	
Q1607	0	7.7	6.6	
Q1609	5.9	8.2	6.5	
Q1613	0.8	4.2	1.4	
Q1681	0	3.3	0	
Q1688	0	3.3	0	

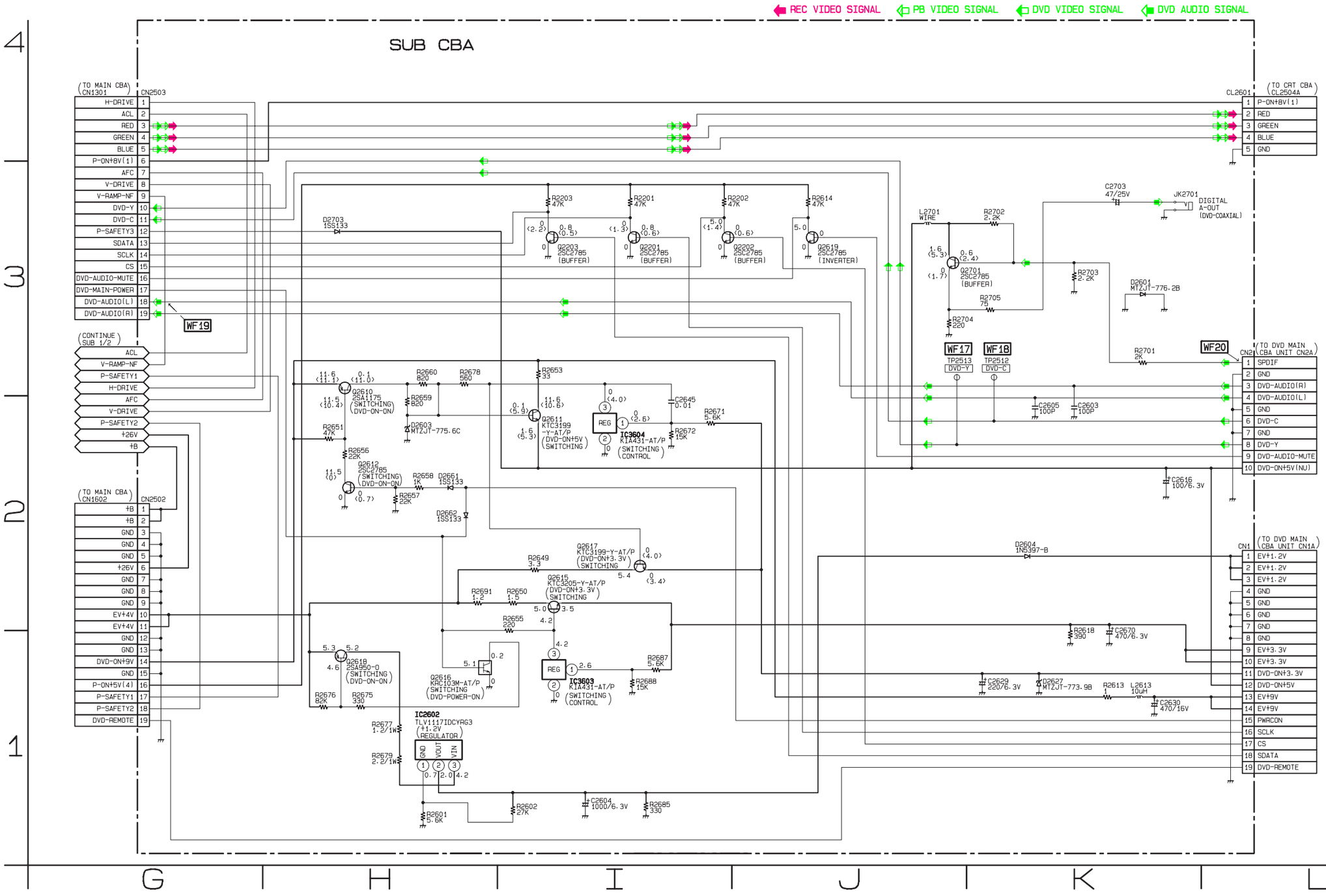


T1202SCM5

Sub 1/2 Schematic Diagram < TV/VCR Section >

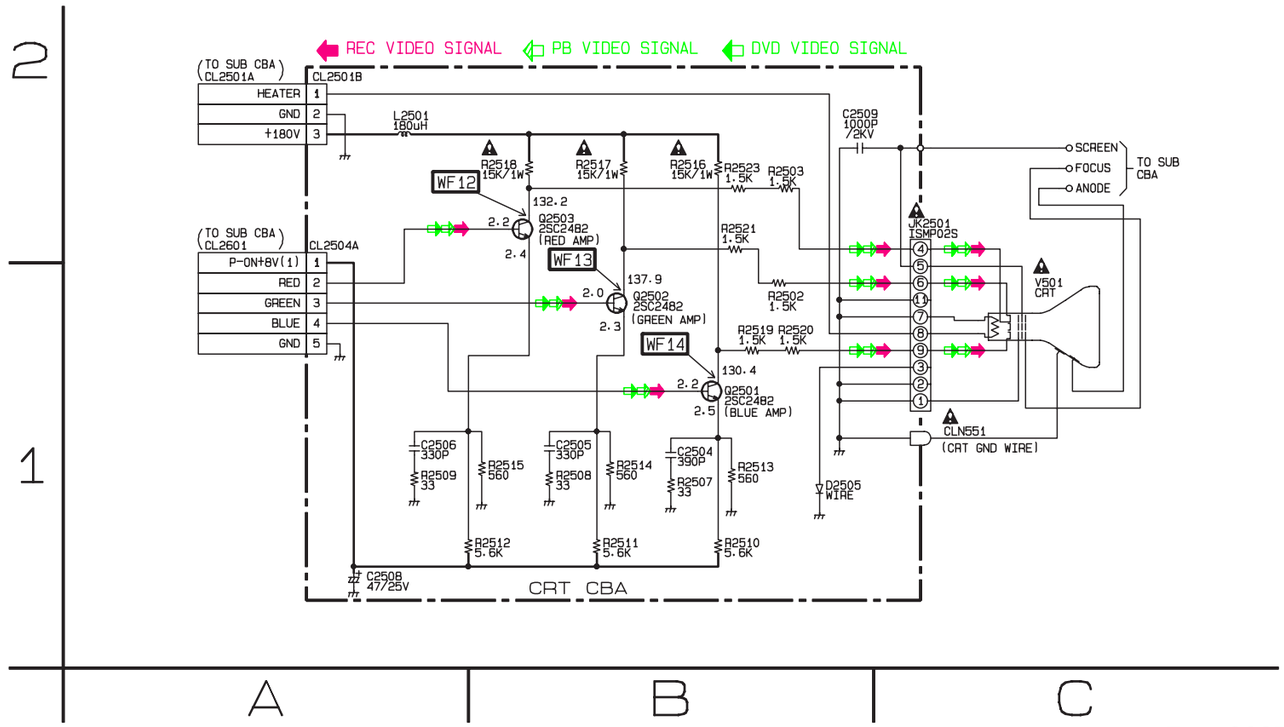


Sub 2/2 Schematic Diagram < TV/VCR Section >



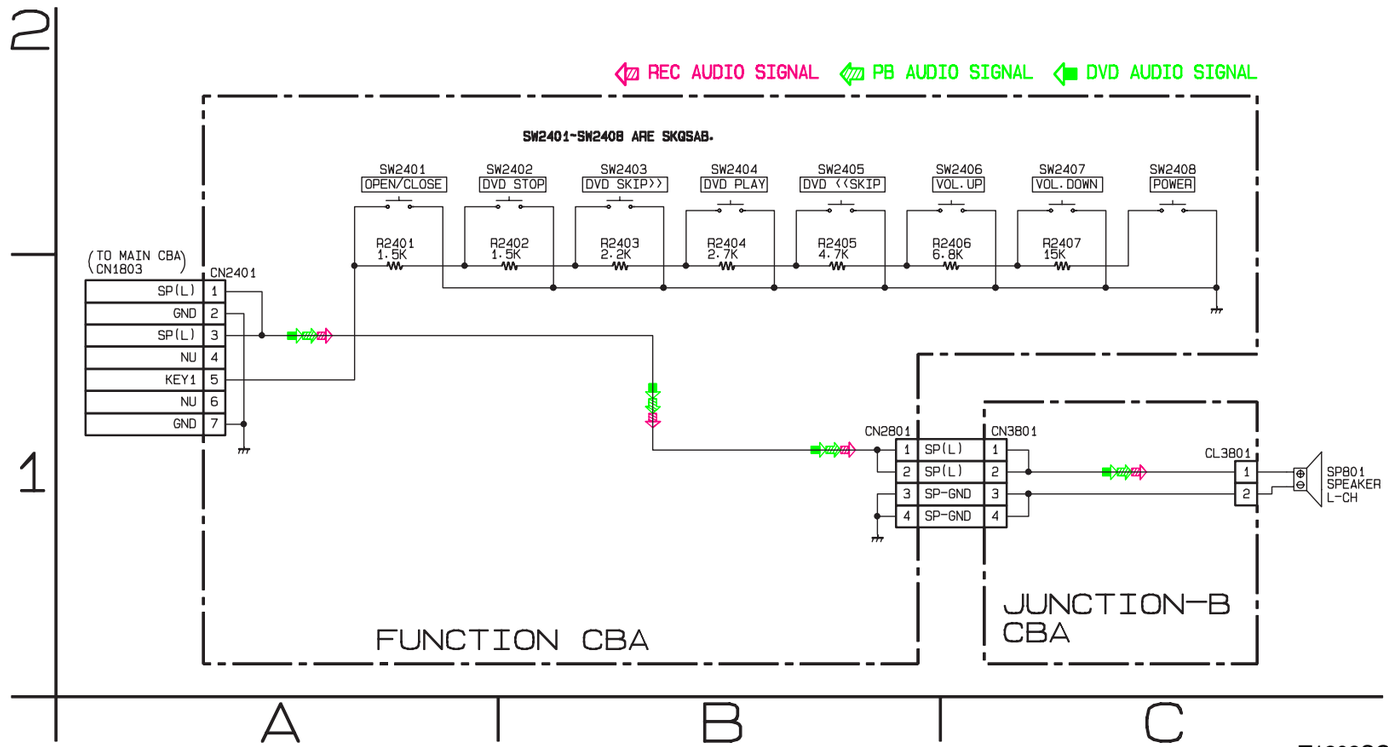
T1202SCSUB2

CRT Schematic Diagram < TV/VCR Section >



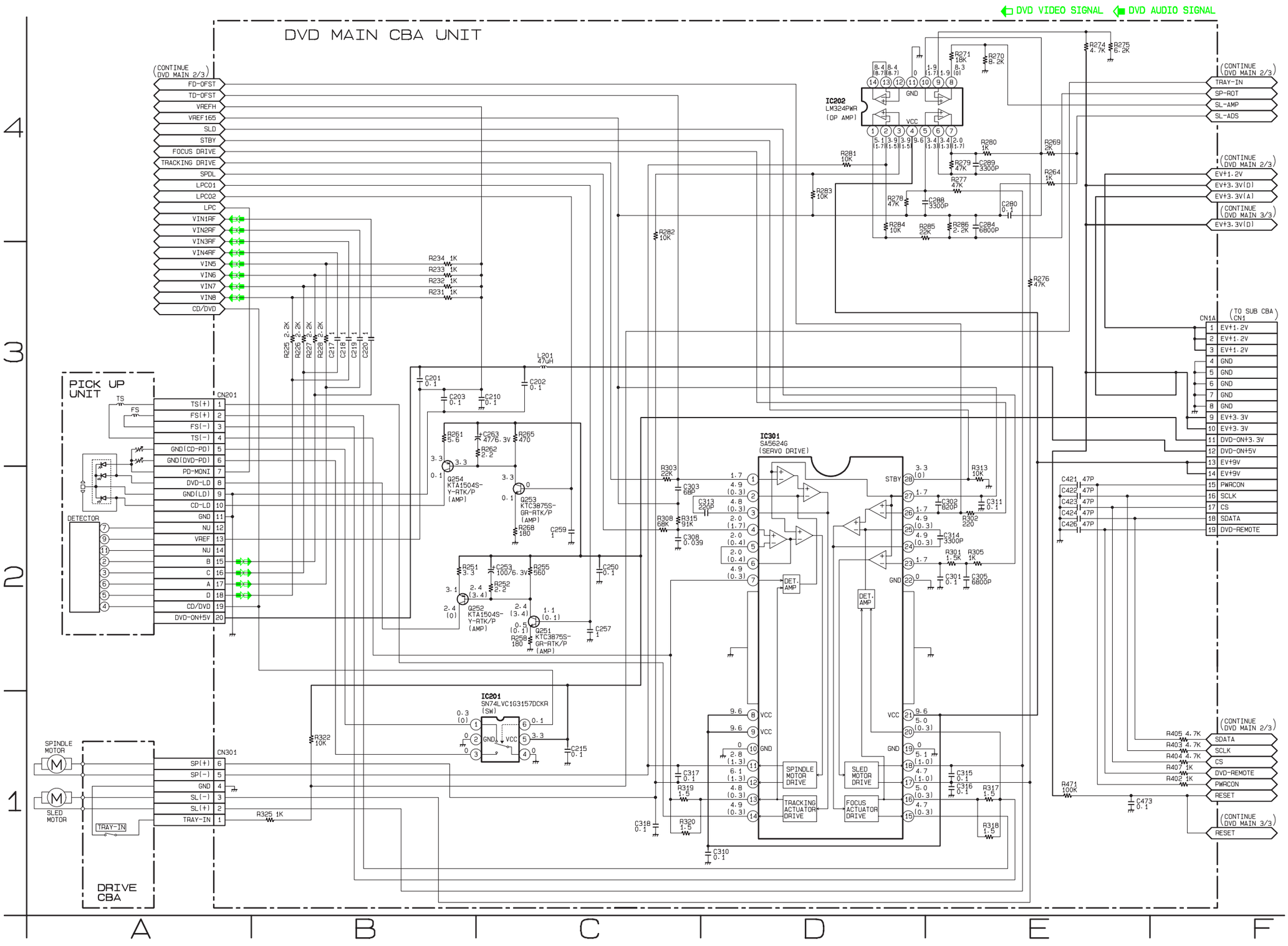
T1202SCCRT

Function & Junction-B Schematic Diagram < TV/VCR Section >

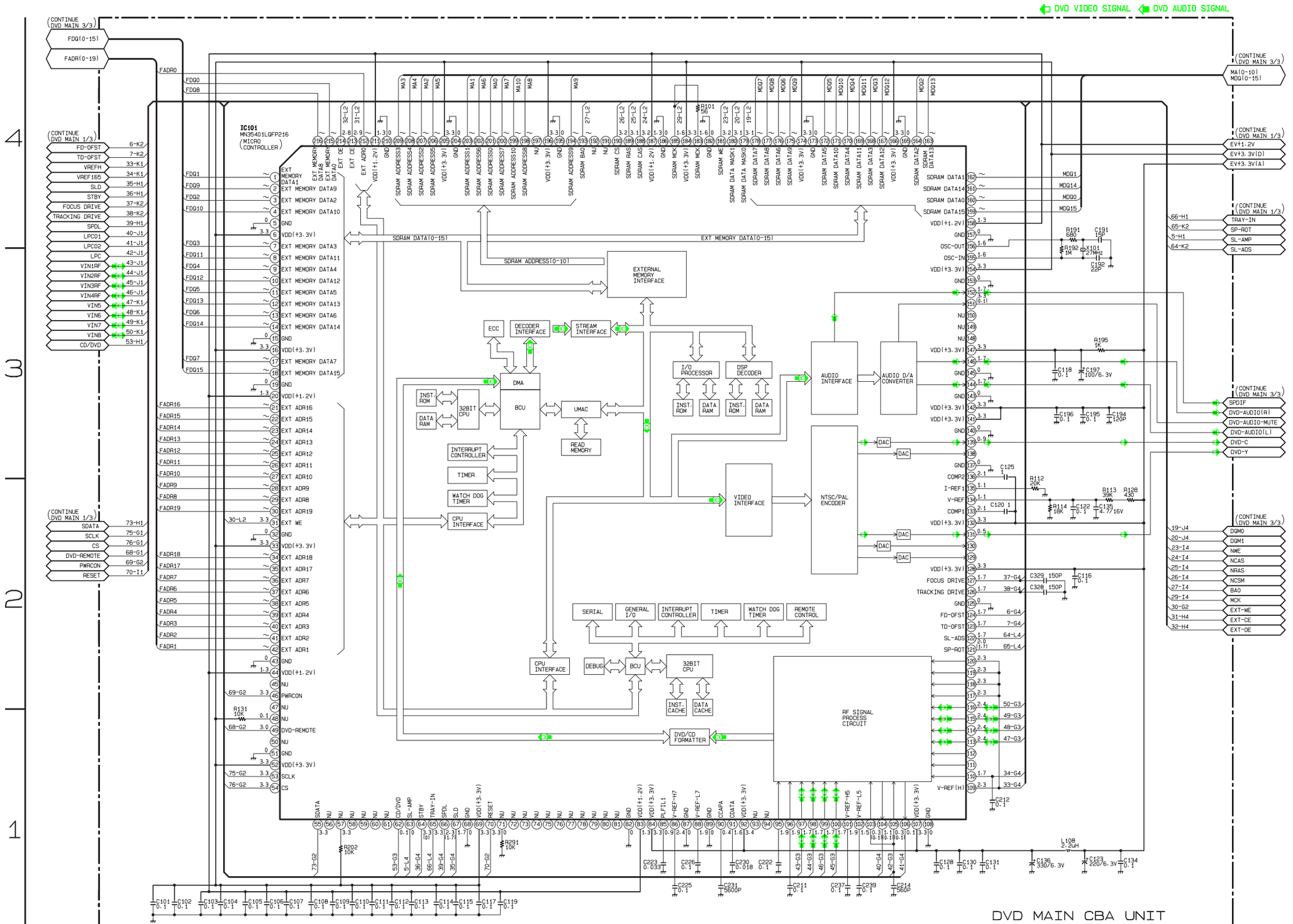


T1202SCF

DVD Main 1/3 Schematic Diagram < DVD Section >



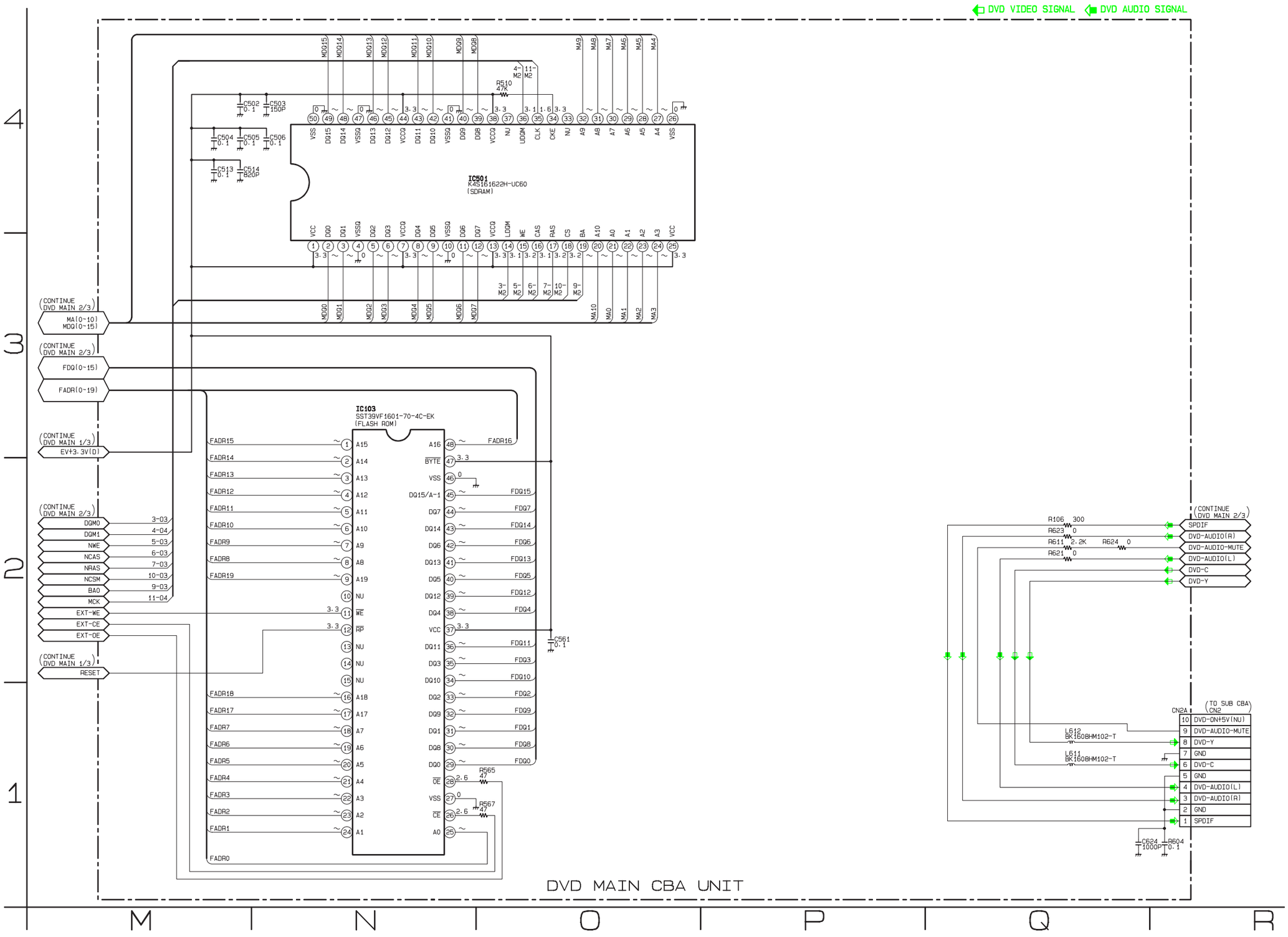
DVD Main 2/3 Schematic Diagram < DVD Section >



1-11-12

T1202SCD2

DVD Main 3/3 Schematic Diagram < DVD Section >



T1202SCD3

Main CBA Top View < TV/VCR Section >

Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.

4A 125V

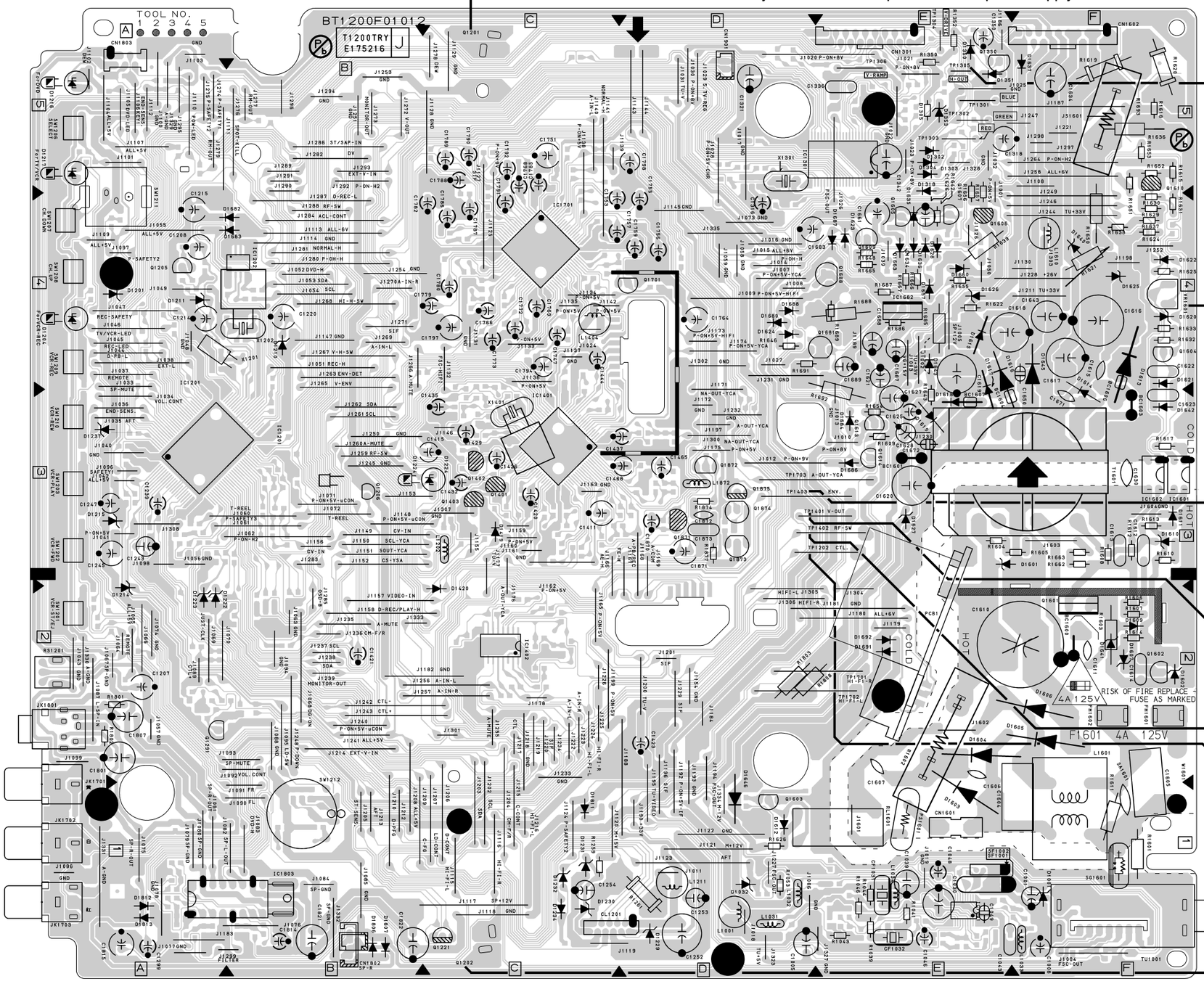
CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.

ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

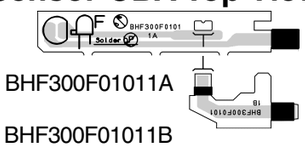
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

TO SENSOR CBA (END-SENSOR)



TO SENSOR CBA (START-SENSOR)

Sensor CBA Top View



BHF300F01011A

BHF300F01011B

BT1200F01012

Main CBA Bottom View < TV/VCR Section >

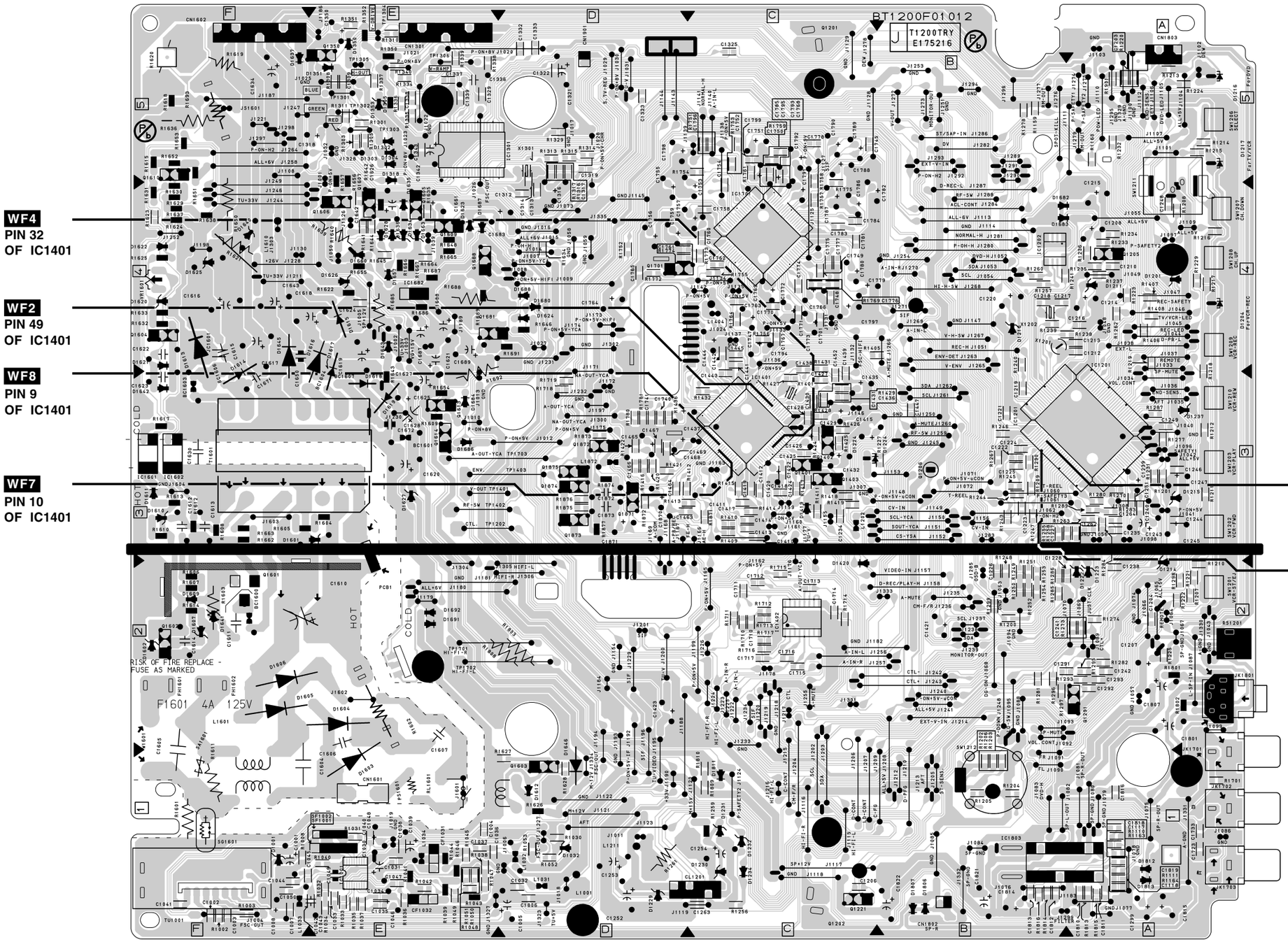
Because a hot chassis ground is present in the power supply circuit, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly,when troubleshooting this type power supply circuit, a variable isolation transformer is required.

4A 125V

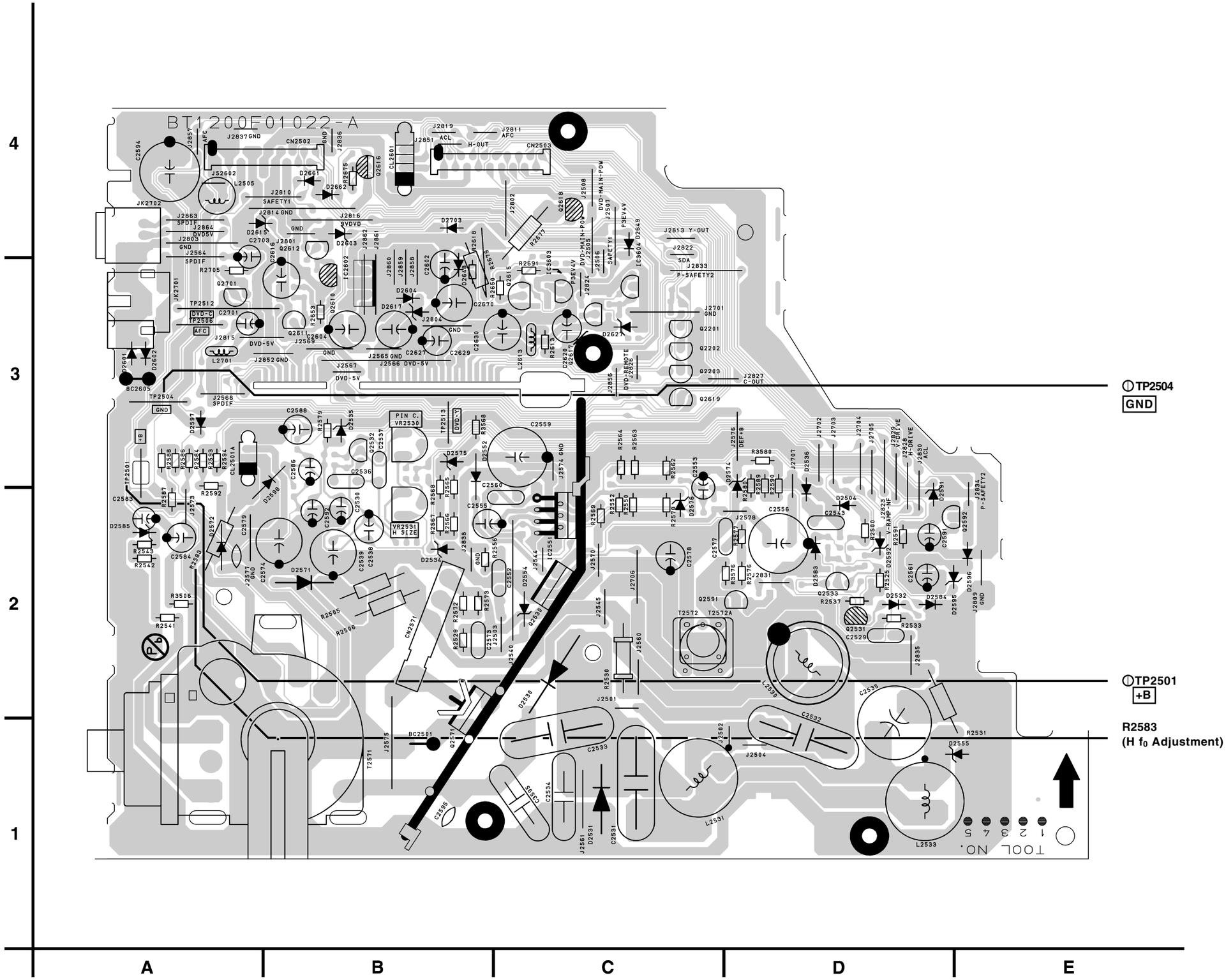
CAUTION ! : For continued protection against risk of fire, replace only with same type 4 A, 125V fuse.
ATTENTION : Utiliser un fusible de rechange de même type de 4A, 125V.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1601) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



Sub CBA Top View < TV/VCR Section >

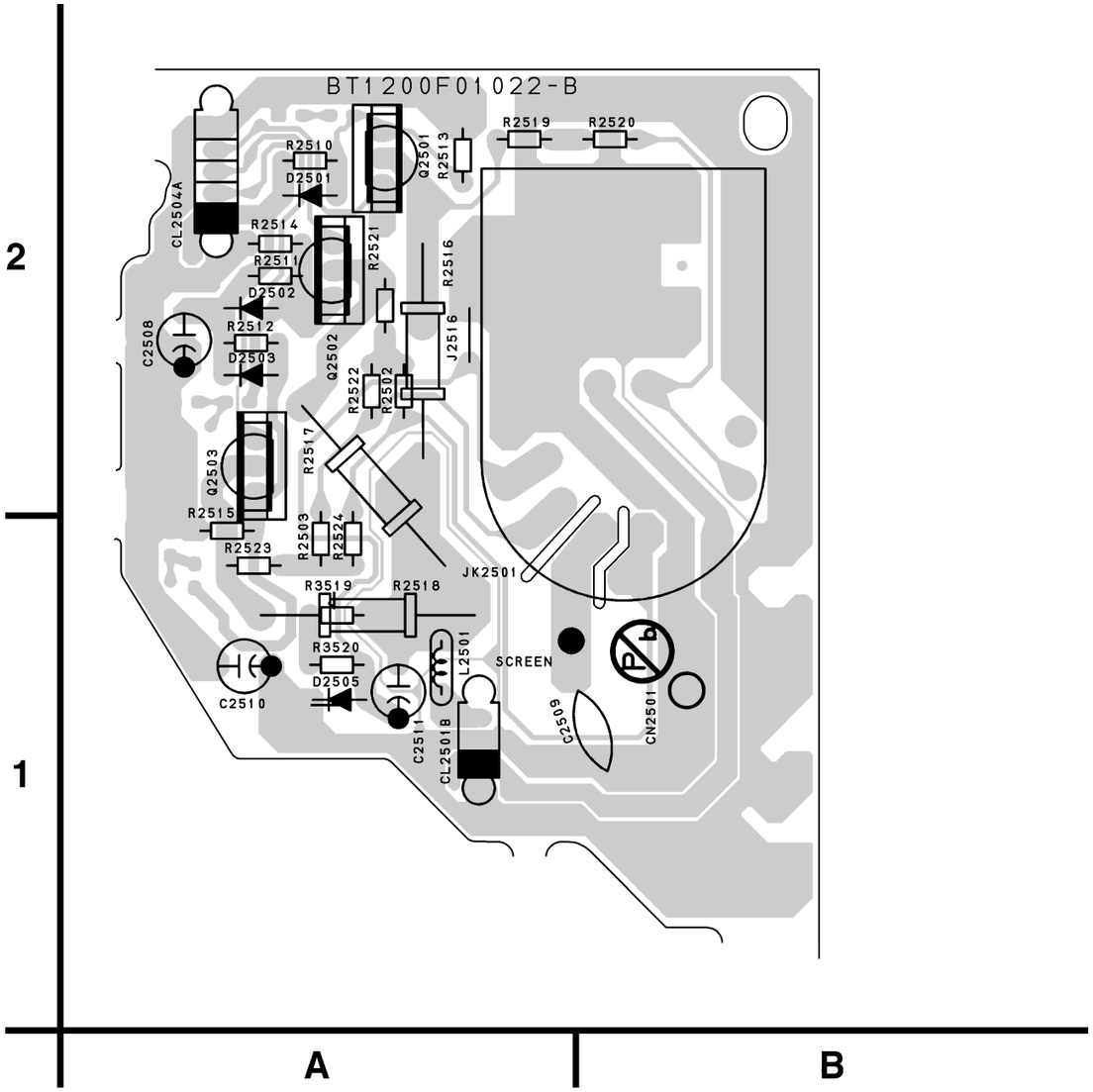


Sub CBA Bottom View < TV/VCR Section >

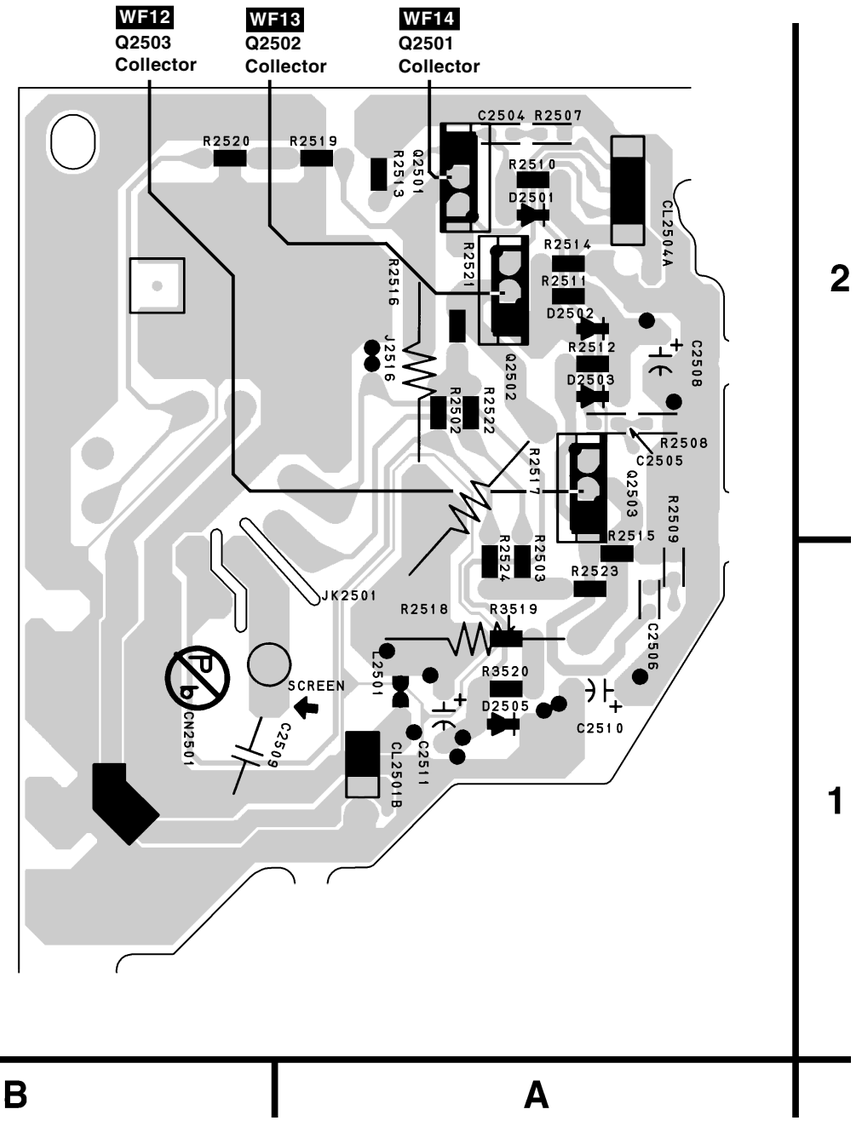
1-11-17

BT1200F01022-A

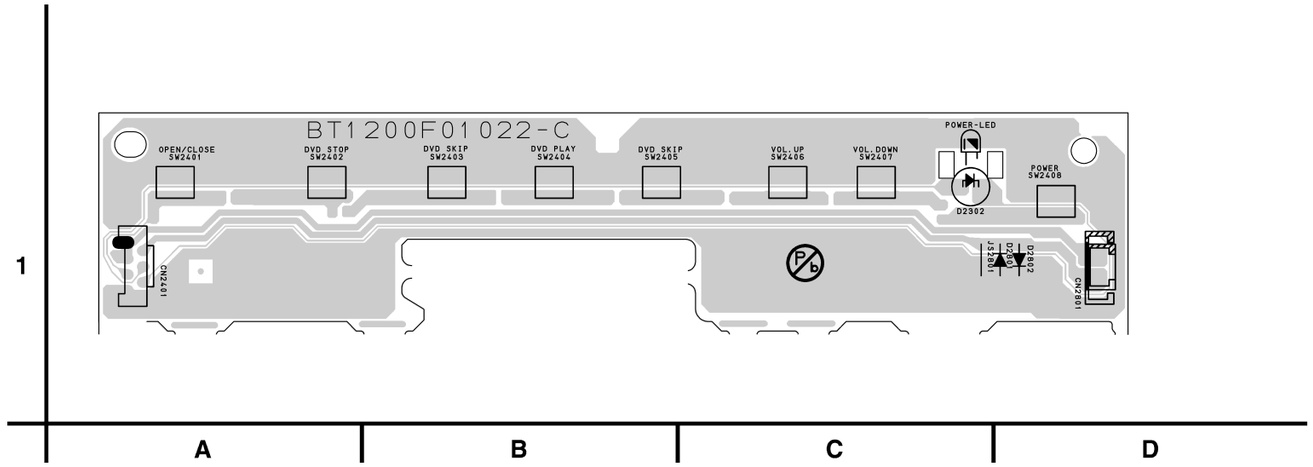
CRT CBA Top View < TV/VCR Section >



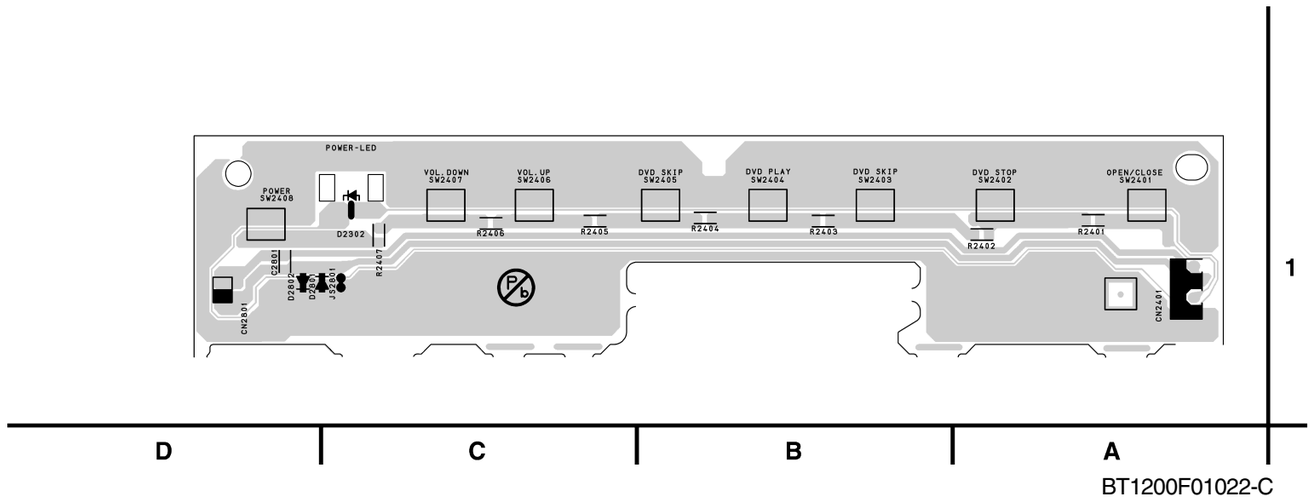
CRT CBA Bottom View < TV/VCR Section >



Function CBA Top View < TV/VCR Section >

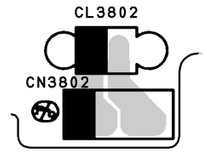


Function CBA Bottom View < TV/VCR Section >

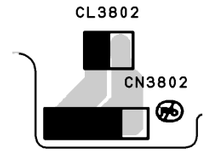


BT1200F01022-C

Junction-A CBA Top View < TV/VCR Section >

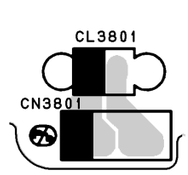


Junction-A CBA Bottom View < TV/VCR Section >

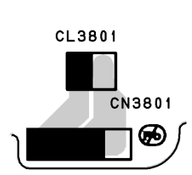


BT1200F01022-D

Junction-B CBA Top View < TV/VCR Section >



Junction-B CBA Bottom View < TV/VCR Section >



BT1200F01022-E

WAVEFORMS

Input: NTSC Color Bar Signal (with 1kHz Audio Signal) --- WF1~WF16
DVD Video (Power on (Stop) MODE) --- WF17, WF18
CD (1KHz Play) --- WF19, WF20
INITIAL POSITION: Unplug unit from AC outlet for at least five minutes, reconnect to AC outlet and then turn power on.
(Brightness---Center Color---Center Tint --- Center Contrast---Approx 70%)

WF1 1DIV: 2V 5ms
TP1402 RF-SW

WF2 1DIV: 0.2V 0.1µs
IC1401 Pin 49

WF3 1DIV: 1V 10ms
TP1202 CTL-AMP-OUT

WF4 1DIV: 0.25V 20µs
IC1401 Pin 32

WF5 1DIV: 0.5V 20 µs
TP1401 V-OUT

Upper: **WF6** Lower: **WF1**
1DIV: 0.2V 2DIV: 5V 5ms
TP1403 ENV.

WF7 1DIV: 0.5V 0.5ms
IC1401 PIN10

WF8 1DIV: 0.5V 0.5ms
IC1401 PIN9

WF9 1DIV: 2V 20µs
TP1305 H-OUT

WF10 1DIV: 200V 20µs
Q2571 COLLECTOR

WF11 1DIV: 10V 5ms
CN2571 PIN 5

WF12 1DIV: 20V 20µs
Q2503 COLLECTOR

WF13 1DIV: 20V 20µs
Q2502 COLLECTOR

WF14 1DIV: 20V 20µs
Q2501 COLLECTOR

WF15 1DIV: 1V 20µs
IC1201 PIN 58

WF16 1DIV: 1V 5ms
IC1201 PIN 59

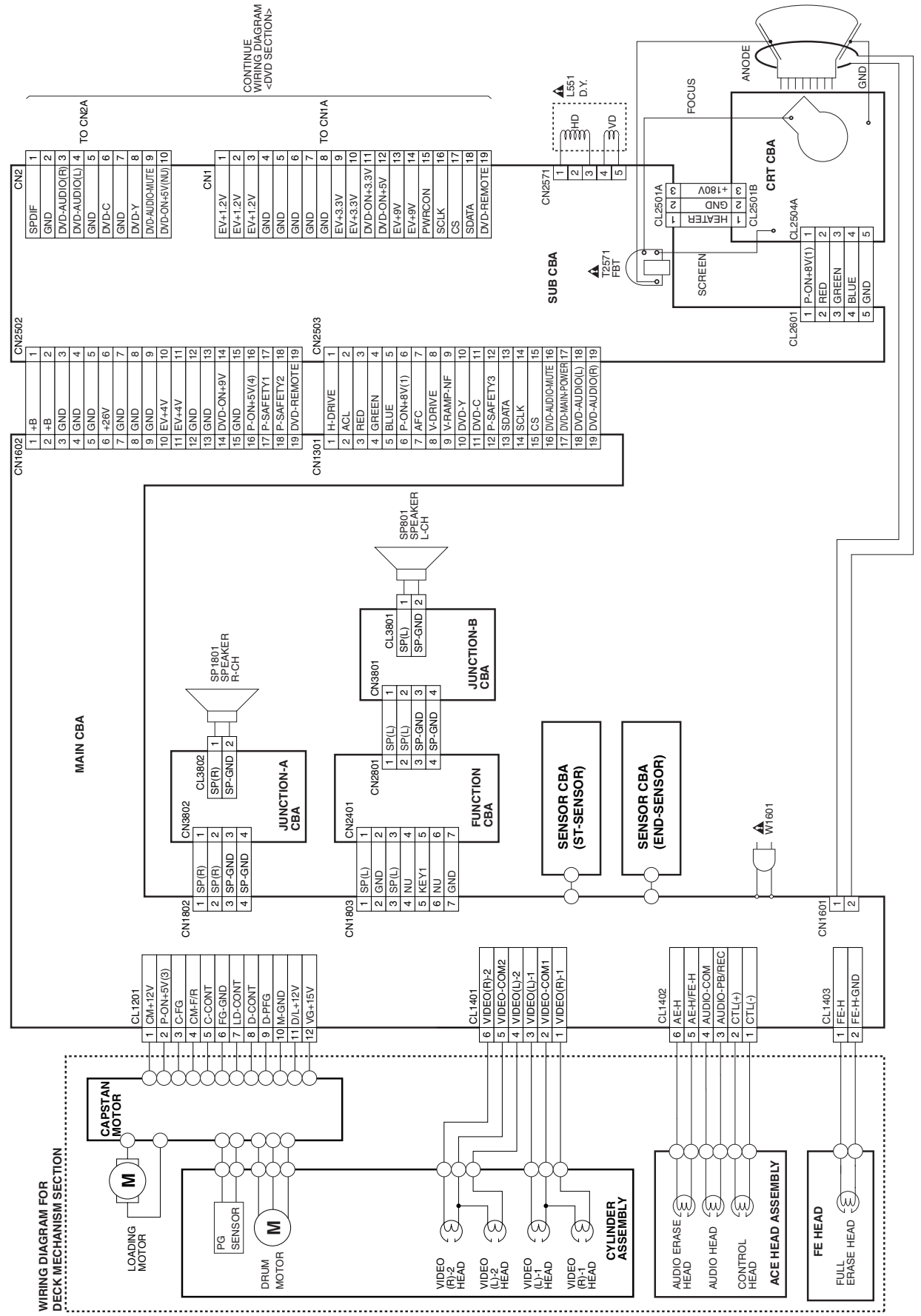
WF17 1DIV: 0.2V 20µs
TP2513 DVD-Y

WF18 1DIV: 0.2V 20µs
TP2512 DVD-C

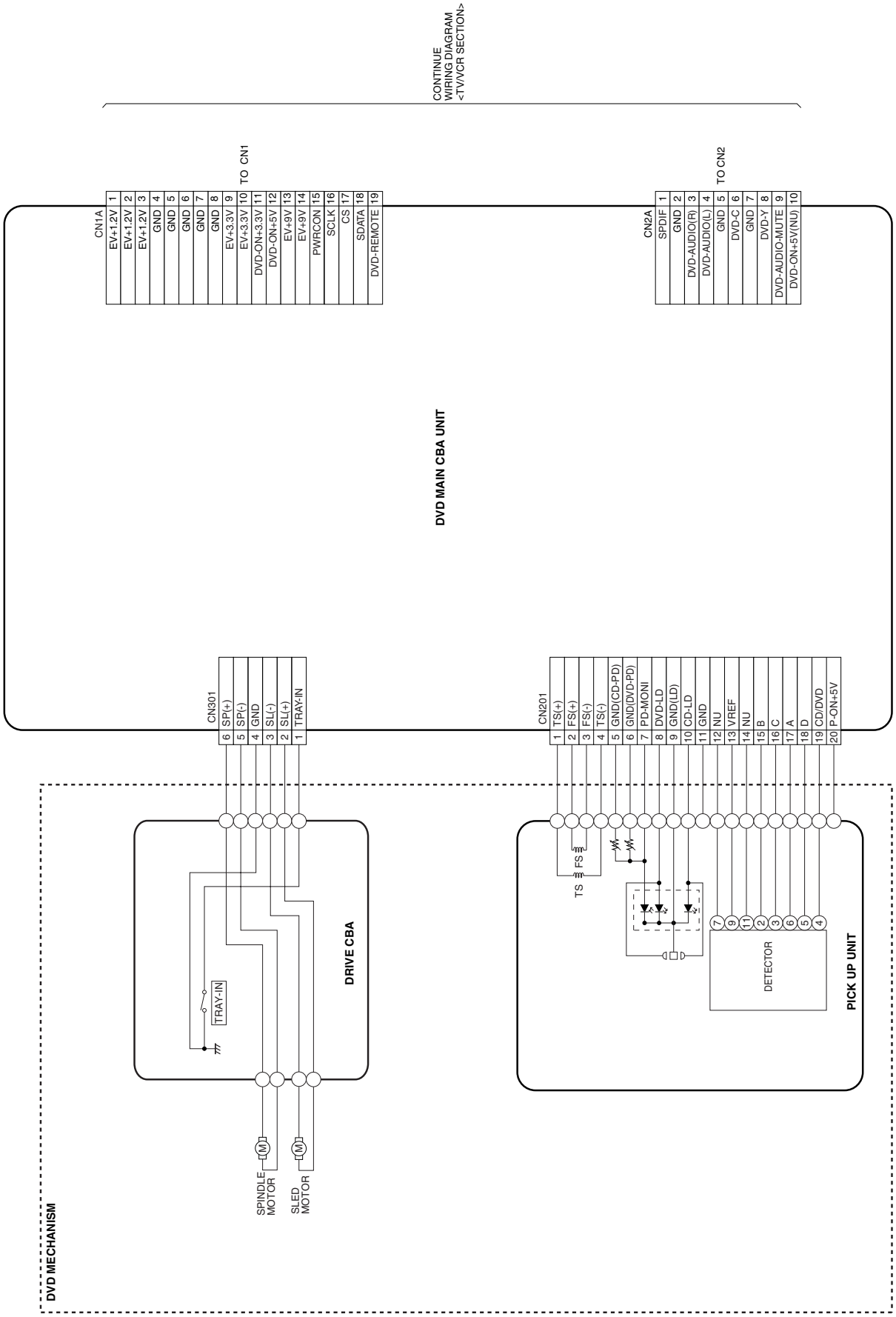
WF19 1DIV: 0.5V 0.5ms
CN2503 PIN 18

WF20 1DIV: 1V 0.1µs
CN2 PIN 1

WIRING DIAGRAM < TV/VCR Section >



WIRING DIAGRAM < DVD Section >



SYSTEM CONTROL TIMING CHARTS

< TV/VCR Section >

Mode SW: LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76 V ~ 4.50 V (4.12 V)	EJ
4.51 V ~ 5.00 V (5.00 V)	CL
0.00 V ~ 0.25 V (0.00 V)	SB
1.06 V ~ 1.50 V (1.21 V)	TL
0.66 V ~ 1.05 V (0.91 V)	FB
1.99 V ~ 2.60 V (2.17 V)	SF
1.51 V ~ 1.98 V (1.80 V)	SM
3.20 V ~ 3.75 V (3.40 V)	AU
0.26 V ~ 0.65 V (0.44 V)	AL
4.51 V ~ 5.00 V (5.00 V)	SS
2.61 V ~ 3.19 V (2.97 V)	RS

Note:

Note: EJ → RS: Loading FWD (LM-FWD / REV “H”)
RS → EJ: Loading REV (LM-FWD / REV “L”)
Stop (A) = Loading
Stop (B) = Unloading

Note:

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop (B)
TL	Stop (B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop (M), (FF / REW)
SM	Stop (M), (FF / REW) ~ Stop (A)
AU	Stop (A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ RS (REW Search)
RS	RS (REW Search)

Chart 1

1) SP MODE

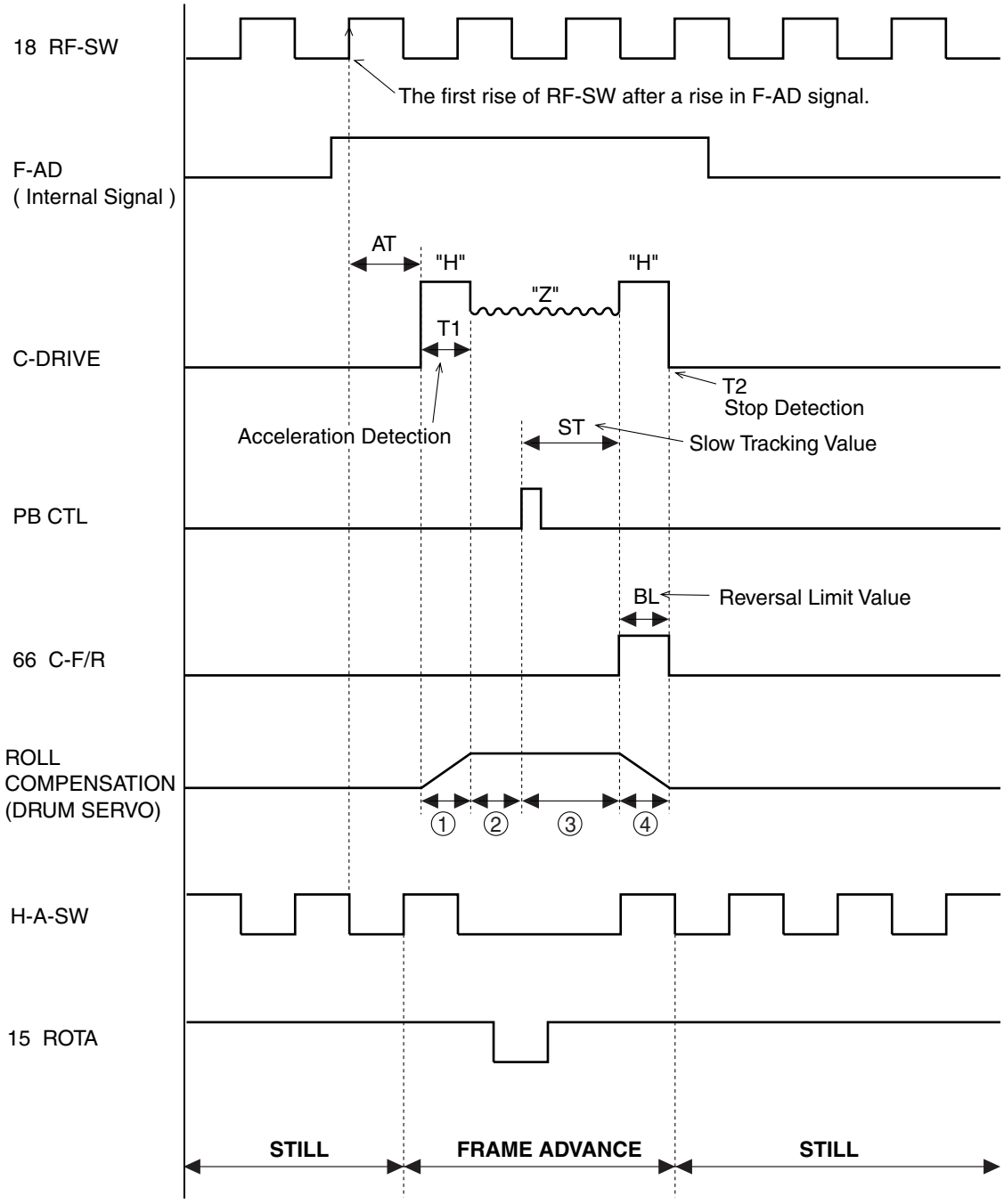


Chart 2

2) LP/EP MODE

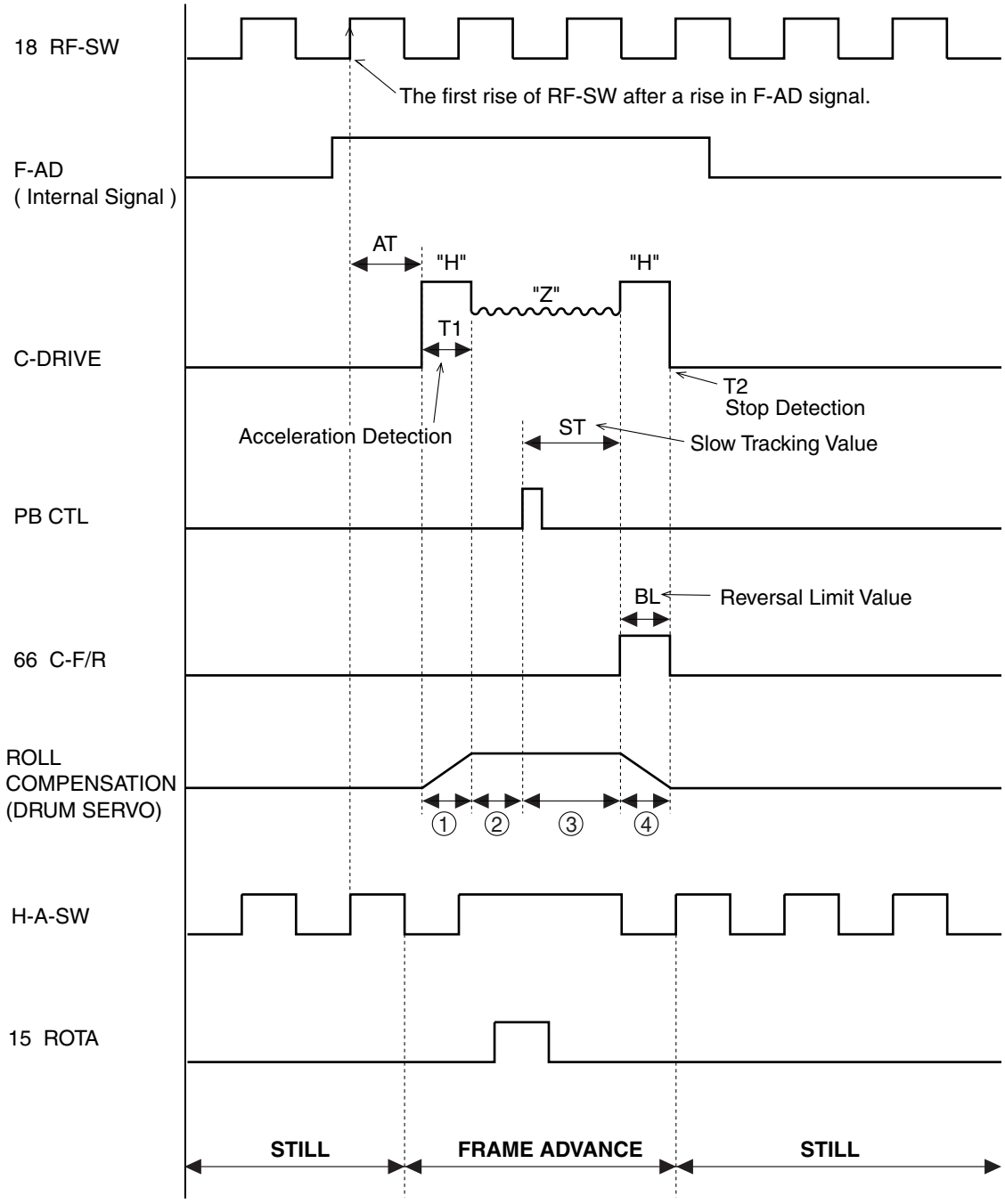


Chart 3

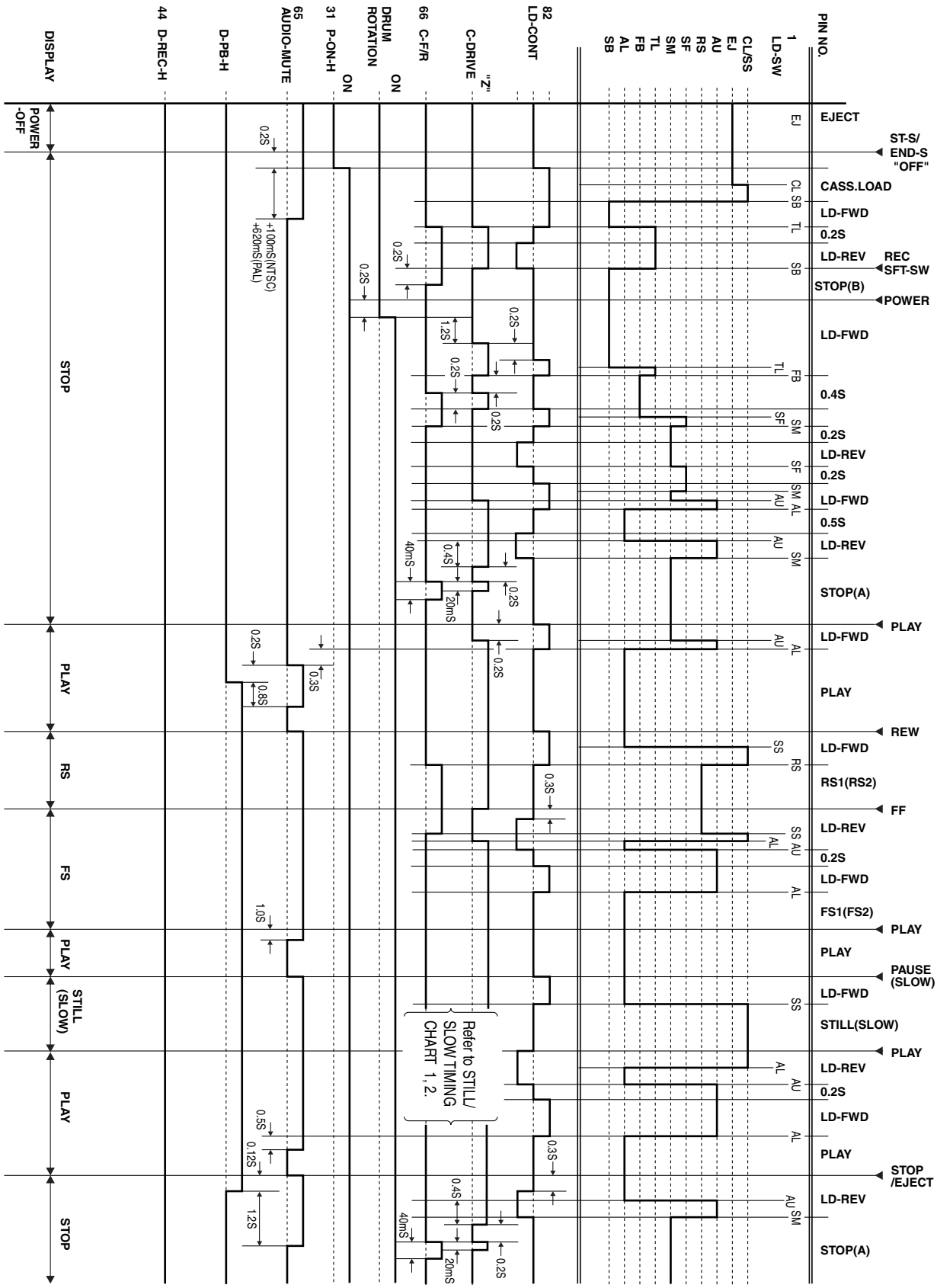
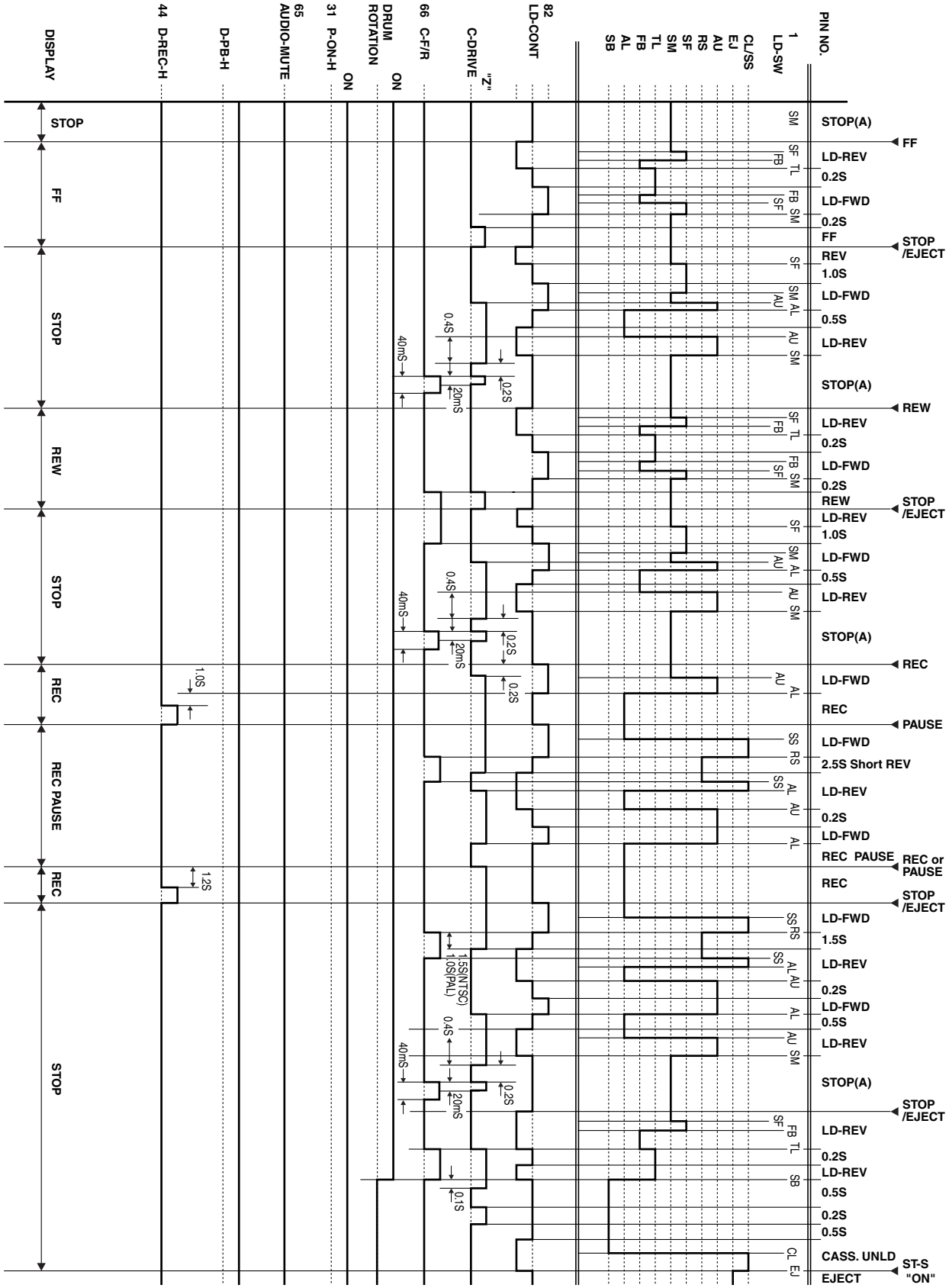
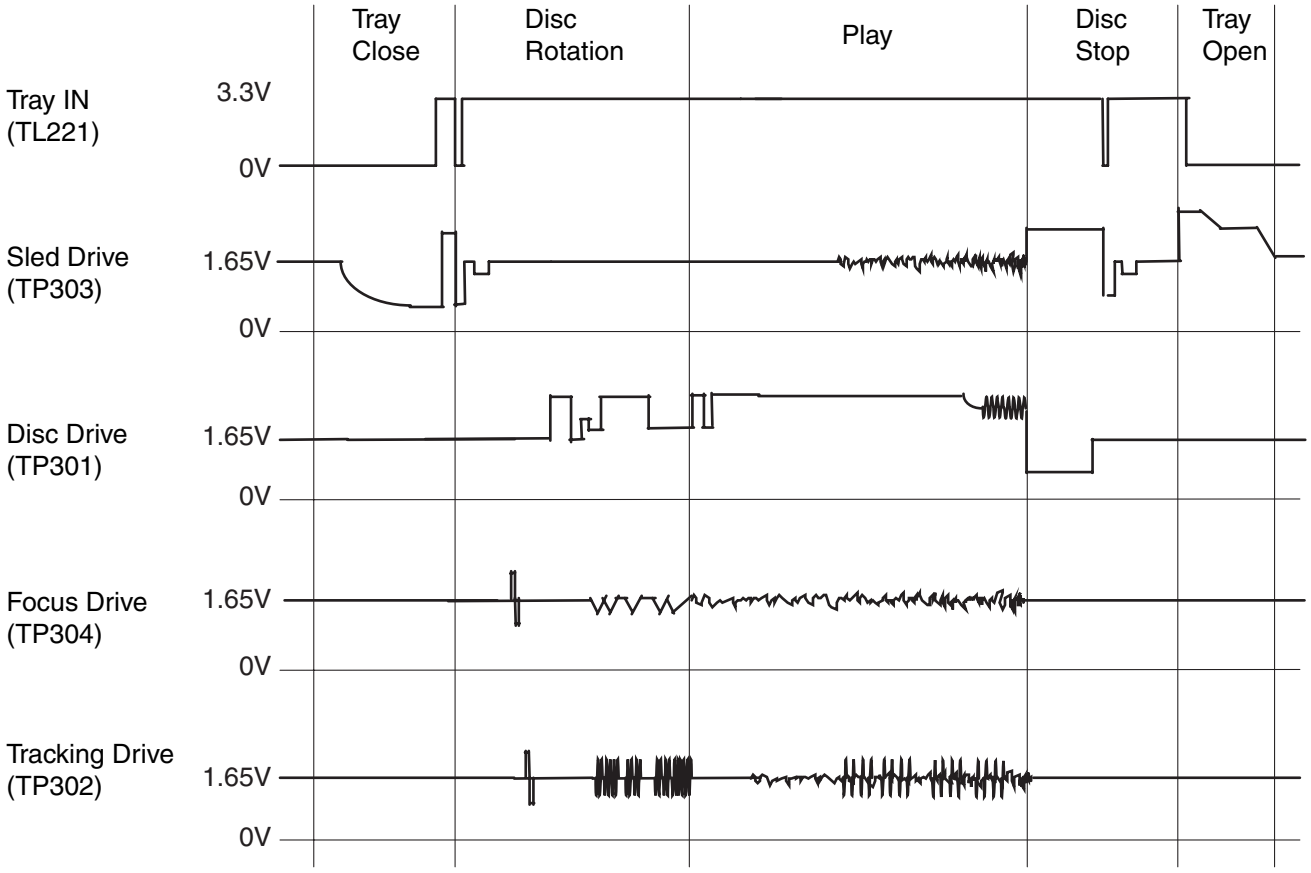

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL/SLOW -> PLAY -> STOP(A)
PIN NO.
1 LD-SW
EJ
CL/SS
EJ
AU
RS
SF
SM
TL
FB
AL
SB
82 LD-CONT
C-DRIVE "Z"
66 C-F/R
DRUM ROTATION
31 P-ON-H
65 AUDIO-MUTE
D-PB-H
44 D-REC-H
DISPLAY
POWER -OFF
EJECT
ST-S/ END-S "OFF"
CASS.LOAD
LD-FWD
0.2S
LD-REV
REC SFT-SW
STOP(B)
POWER
LD-FWD
0.4S
0.2S
LD-REV
0.2S
LD-FWD
0.5S
LD-REV
STOP(A)
PLAY
LD-FWD
PLAY
REW
LD-FWD
RS1(RS2)
FF
LD-REV
0.2S
LD-FWD
FS1(FS2)
PLAY
PLAY
PAUSE (SLOW)
LD-FWD
STILL(SLOW)
PLAY
LD-REV
0.2S
LD-FWD
PLAY
STOP /EJECT
LD-REV
STOP(A)
Refer to STILL/ SLOW TIMING CHART 1, 2.
STOP
PLAY
RS
FS
PLAY
STILL (SLOW)
PLAY
STOP
+100mS(NTSC)
+620mS(PAL)
0.2S
1.2S
40mS
20mS
0.8S
0.3S
1.0S
0.5S
0.12S

Chart 4


2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT
PIN NO.
1 LD-SW
CL/SS
EJ
AU
RS
SF
SM
TL
FB
AL
SB
82 LD-CONT
C-DRIVE "Z"
66 C-F/R
DRUM ROTATION
31 P-ON-H
65 AUDIO-MUTE
D-PB-H
44 D-REC-H
DISPLAY
STOP(A)
FF
LD-REV
0.2S
LD-FWD
REV
1.0S
0.5S
REW
2.5S Short REV
REC
REC PAUSE
1.5S(NTSC)
1.0S(PAL)
0.4S
40mS
20mS
0.1S
CASS. UNLD
EJECT
ST-S "ON"
STOP
/EJECT
REC or PAUSE
ON

< DVD Section >

Tray Close ~ Play / Play ~ Tray Open



IC PIN FUNCTION DESCRIPTIONS

IC1201 (TV/VCR Micro Controller IC)

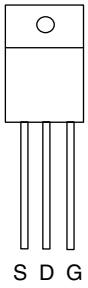
"H" ≥ 4.5 V, "L" ≤ 1.0 V

Pin No.	IN/ OUT	Signal Name	Function
1	IN	LD-SW	Loading Switch Input
2	OUT	DVD-LED	DVD LED Control Output
3	IN	P-SAFETY 2	Power Supply Failure Detection 2
4	-	NU	Not Used
5	IN	KEY0	Key Input 0
6	IN	KEY1	Key Input 1
7	IN	END-SENS	End-Sensor
8	IN	AFT	AFT Voltage Input
9	IN	ST-SENS	Start-Sensor
10	IN	V-ENV	Video Envelope Input
11	OUT	VOLUME	Volume Control Signal Output
12	OUT	SP-MUTE	Speaker Mute Signal Output
13	OUT	DV-SYNC	Artificial Vertical Sync Output
14	IN	REMOTE	Remote Control Signal Input
15	OUT	ROTA	Color Phase Rotary Changeover Signal
16	OUT	V-H-SW	Video Head Amp Switching Pulse
17	IN	ENV-DET	Envelope Comparator Signal
18	OUT	RF-SW	Video Head Switching Pulse
19	-	NU	Not Used
20	OUT	D-PB-L	Output in Playback
21	OUT	REC-LED	REC LED Control Signal
22	IN	NORMAL-H	Audio Mode Input Signal
23	-	NU	Not Used
24	-	NU	Not Used
25	OUT	DVD-REMOTE	Remote Control Signal Output to DVD
26	OUT	TV/VCR-LED	TV/VCR LED Control Signal
27	-	NU	Not Used
28	OUT	EXT-L	External Input or Playback = Output
29	OUT	D-REC /PB-L	Delayed Record/Playback Control Signal
30	-	NU	Not Used
31	OUT	P-ON-H	Power On Signal at High
32	-	NU	Not Used
33	IN	REC-SAFETY	Record Protection Tab Detection
34	IN	RESET	System Reset Signal (Reset = "L")
35	IN	XC-IN	Sub Clock (32kHz)
36	OUT	XC-OUT	Sub Clock (32kHz)
37	-	TIMER+5V	Vcc
38	IN	X-IN	Main Clock (10.6MHz)
39	OUT	X-OUT	Main Clock (10.6MHz)
40	-	GND	GND
41	OUT	SPOT-KILL	Counter Measure for Spot
42	IN	DVD-MAIN-POWER	Power On Signal at High for DVD
43	IN	CLKSEL	Clock Select (GND)
44	OUT	D-REC-H	Delayed Record Control Signal
45	IN	I2C-OPEN	Chip Select
46	-	GND	GND
47	IN	DVD-AUDIO-MUTE	DVD Audio Mute Signal
48	OUT	DVD-H	DVD at High
49	-	GND	GND
50	IN	CS	DVD Interface Chip Select
51	IN	SCLK	DVD Interface Serial Clock
52	IN	SDATA	DVD Interface Serial Data
53	-	P-ON+5V	OSD Vcc
54	-	HLF	Horizontal Filter
55	IN	V-HOLD	Vertical Hold
56	IN	CV-IN	Composite Video Signal Input
57	-	GND	GND
58	IN	H-SYNC	Horizontal SYNC Input
59	IN	V-SYNC	Vertical SYNC Input
60	OUT	OSD-BLK	Output for Picture Cut off
61	-	NU	Not Used
62	OUT	OSD-B	Blue Signal Output
63	OUT	OSD-G	Green Signal Output
64	OUT	OSD-R	Red Signal Output
65	OUT	AUDIO-MUTE	Audio Mute Signal Output

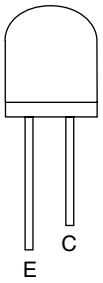
Pin No.	IN/ OUT	Signal Name	Function
66	OUT	C-F/R	Capstan Motor FWD/REV Control Signal
67	OUT	D-REC /PB-H	Delayed Record/Playback Control Signal
68	OUT	YCA-SDA	YCA Serial Data
69	OUT	YCA-CS	YCA Chip Select
70	OUT	YCA-SCL	YCA Serial Clock
71	OUT	SCL	Serial Clock
72	IN/ OUT	SDA	Serial Data
73	-	NU	Not Used
74	IN	C-SYNC	Composite Sync Input
75	-	NU	Not Used
76	OUT	C-CONT	Capstan Motor Control Signal
77	OUT	D-CONT	Drum Motor Control Signal
78	IN	P-SAFETY 3	Power Supply Failure Detection 3
79	-	NU	Not Used
80	IN	T-REEL	Take Up Reel Rotation Signal
81	-	NU	Not Used
82	OUT	LD-CONT	Loading Motor Control Signal
83	-	NU	Not Used
84	IN	P-DOWN	Power Voltage Down Detector Signal
85	-	NU	Not Used
86	-	NU	Not Used
87	IN	C-FG	Capstan Motor Rotation Detection Pulse
88	-	GND	GND (AMP)
89	-	NU	Not Used
90	IN	D-PFG	Drum Motor Pulse Generator
91	-	NU	Not Used
92	IN	AMP-VREF-IN	Standard Voltage Input
93	-	C	Ext. Capacitor Connection Port for Analog Amp
94	IN/ OUT	CTL (-)	Record/Playback Control Signal (-)
95	IN/ OUT	CTL (+)	Record/Playback Control Signal (+)
96	-	AMPC	Amp Capacitor
97	OUT	CTL-AMP-OUT	Control Amp Output
98	-	P-ON+5V	Power Supply for AMP
99	-	AL+5V	A/D, D/A Standard Voltage
100	IN	P-SAFETY 1	Power Supply Failure Detection 1

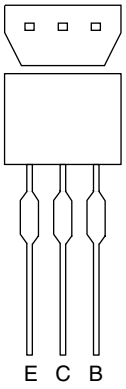
LEAD IDENTIFICATIONS

2SK3563

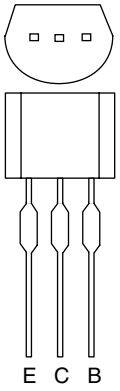


MID-32A22F



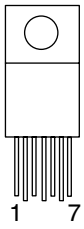


2SC2785(F)
KRA103M-AT/P
KRC103M-AT/P
KTC3199-GR-AT/P
KTC3199-Y-AT/P
KTC3205-Y-AT/P

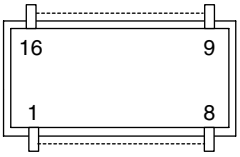


2SA1175(F)
2SA950-O(TE2 F T)
2SC2120-O(TE2 F T)
2SC1627-Y(TE2.F.T)
2SC2482
2SC3331(T)

LA78040A



AN17812A



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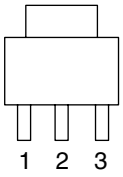
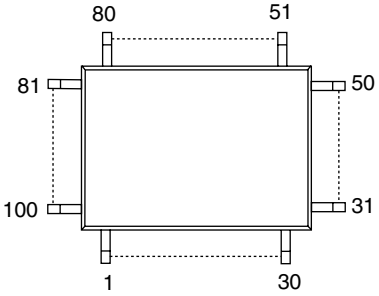
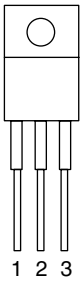


1: GND
2: Vout
3: Vin

M3776AMCH-BA4GP

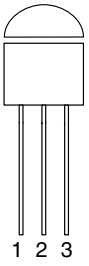


KIA7805API/P



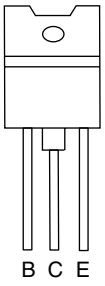
1: IN
2: GND
3: OUT

KIA431-AT/P



1: R
2: A
3: K

TT2140LS-YB11



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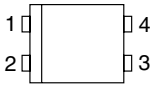
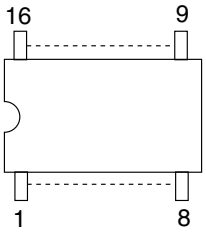
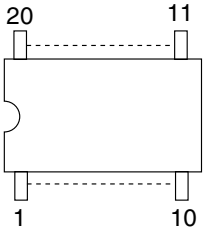


1: A
2: K
3: E
4: C

TC4053BF(EL N F)



M61113FP TF0G



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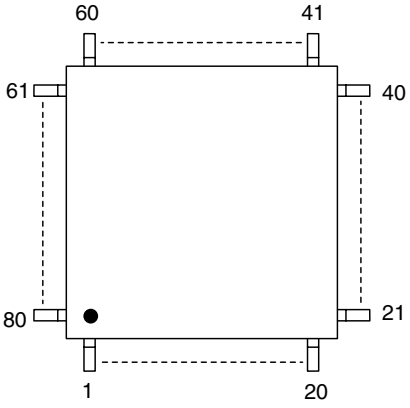

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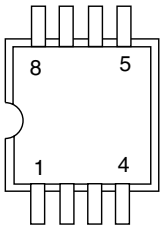
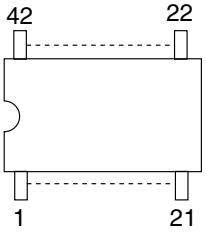


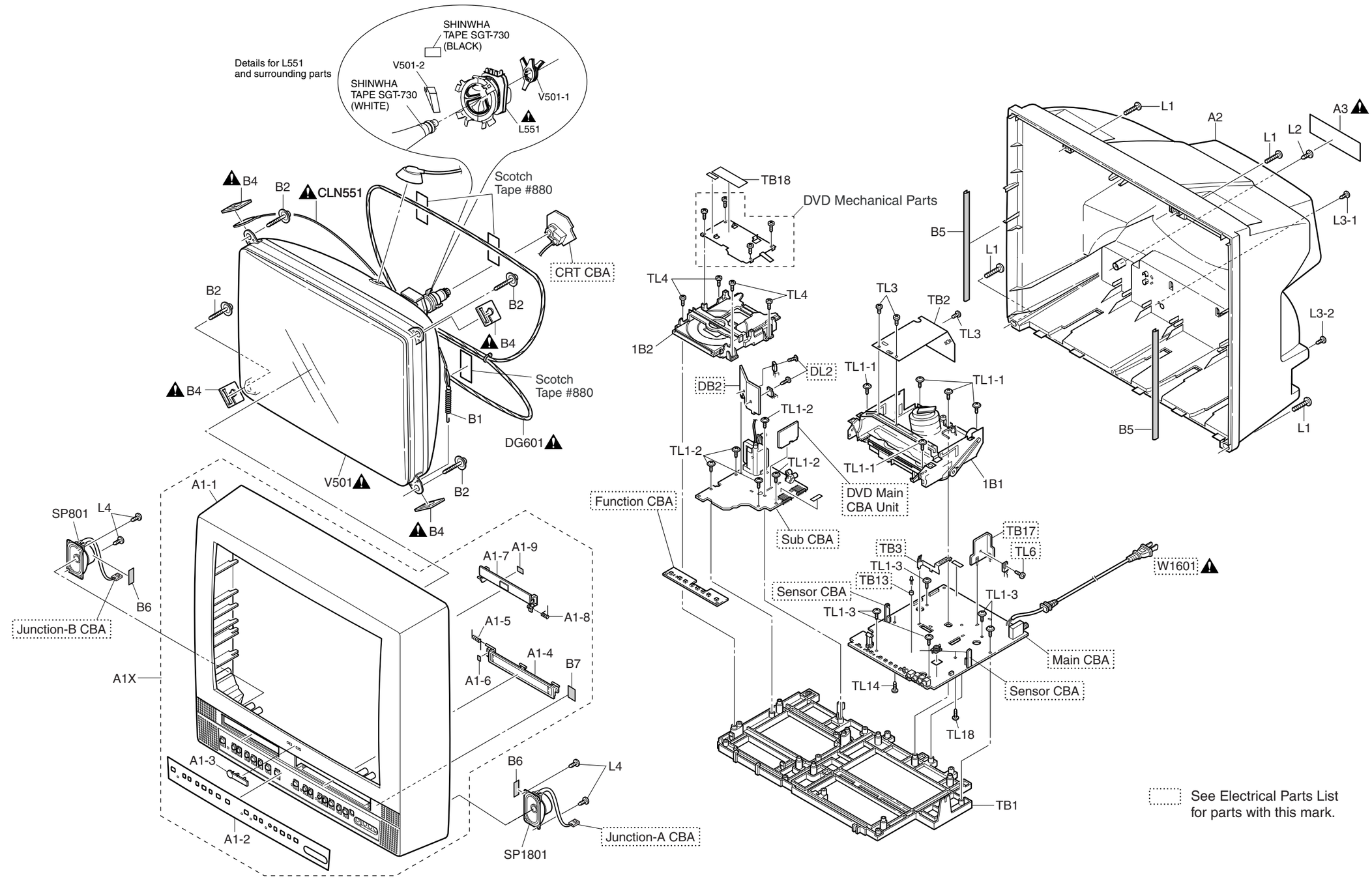
M61275FP-TF3H



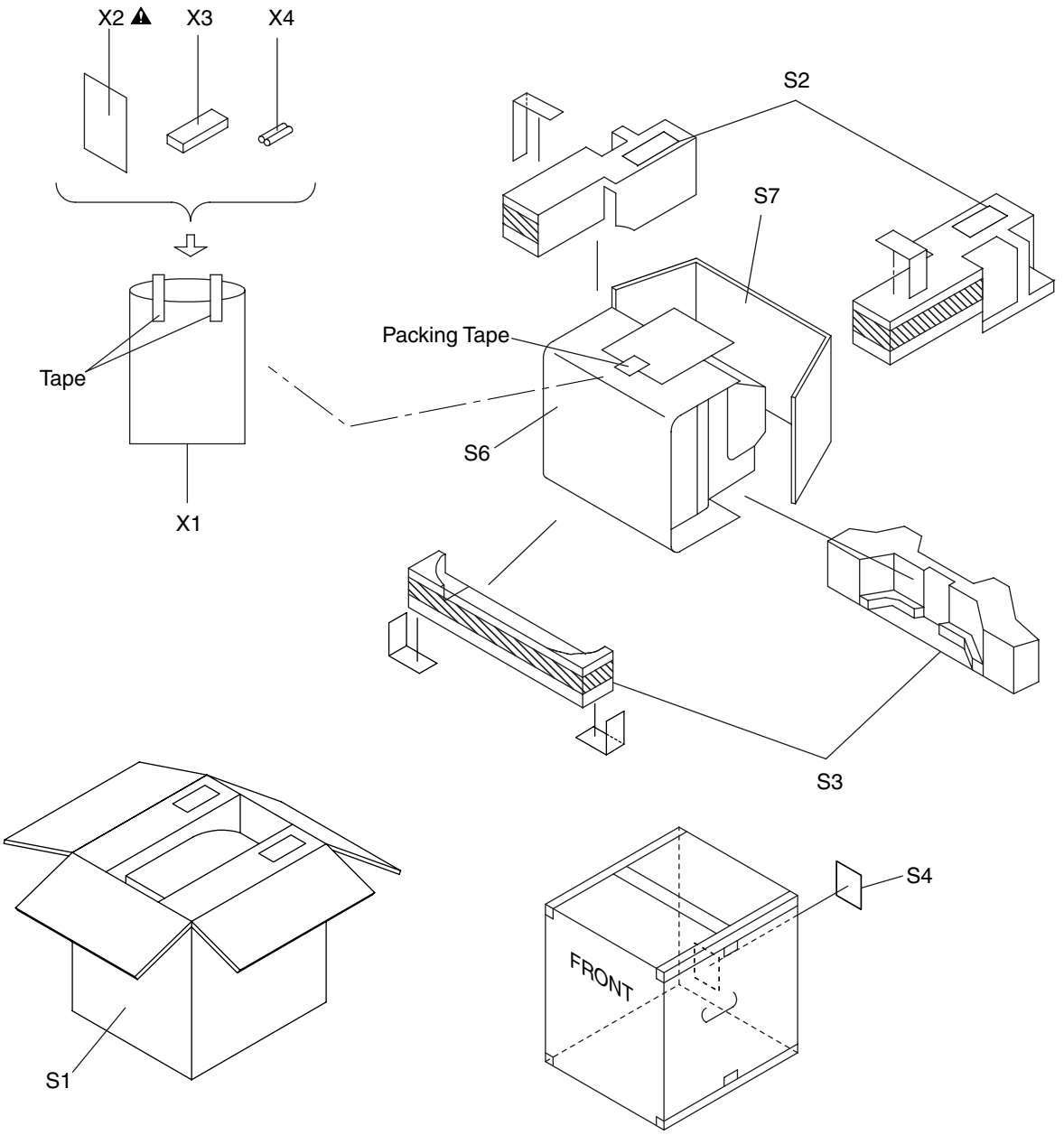
Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

EXPLODED VIEWS

Cabinet



Packing



MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Ref. No.	Description	Part No.
A1X	FRONT CABINET ASSEMBLY T1202UC	1EM121334
A1-1	FRONT CABINET T1202UC	1EM121335
A1-2	CONTROL PLATE T1202UC	1EM221101
A1-3	BADGE BRAND T7310UL MAGNAVOX	0EM407275
A1-4	CASSETTE DOOR T1202UC	1EM422886
A1-5	SPRING DOOR T1200UA	1EM422903
A1-6	CLOTH(4X7XT0.7) T5000UA	0EM404974
A1-7	TRAY PANEL TD930JA	0EM301939A
A1-8	TRAY SPRING TD707UH	0EM408552
A1-9	CLOTH(B) L5201U0 15X10X1.0T	0EM400076
A2	REAR CABINET T1202UC	1EM021272
A3⚠	RATING LABEL T1202UC	---------
1B1	DECK ASSEMBLY CZD014/VM2446	N2446FT
1B2	DVD MECHA X7 TRIPLE N79U1KVM	N79U1KVM
B1	SPRING TENSION B0080B0 EM40808	26WH006
B2	SCREW L1500UA	0EM406142A
B4⚠	DEGAUSS HOLDER L2401UB	1EM420205
B5	CLOTH 190X15XT0.5	TS7623
B6	CLOTH(10X30XT0.5) B5900UA	0EM404486
B7	CLOTH(15X10XT0.5) L9700UA	0EM405038
CLN551⚠	WIRE ASSEMBLY WX1T9200-004	WX1T9200-004
DG601⚠	DEGAUSSING COIL F-054	LLBH00ZTM054
L1	SCREW P-TIGHT 4X18 BIND HEAD +	GBJP4180
L2	SCREW TAPPING M4X14	DBT14140
L3-1	SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
L3-2	SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
L4	SCREW P-TIGHT 3X10 BIND HEAD+	GBJP3100
L551⚠	DEFLECTION YOKE LLBY00ZSY010	LLBY00ZSY010
SP801	SPEAKER S0407F01A	DSD0807XQ001
SP1801	SPEAKER S0407F01A	DSD0807XQ001
TB1	TRAY CHASSIS T1200UA	1EM020548
TB2	TOP SHIELD T1100UA	1EM320155
TB18	LASER CAUTION LABEL T8200UA	---------
TL1-1	SCREW P-TIGHT 3X12 WASHER HEAD+	GCJP3120
TL1-2	SCREW P-TIGHT 3X12 WASHER HEAD+	GCJP3120
TL1-3	SCREW P-TIGHT 3X12 WASHER HEAD+	GCJP3120
TL3	SCREW S-TIGHT M3X4 BIND HEAD	GBJS3040
TL4	SCREW P-TIGHT 3X20 BIND HEAD +	GBJP3200
TL14	SCREW B-TIGHT D3X8 BIND HEAD+	GBJB3080
TL18	SCREW P-TIGHT M3X8 BIND HEAD+ BLK	GBHP3080
V501⚠	CRT A51LYW996X	TCRT190MS016
V501-1	C.P.MAGNET JH225-FN-00	XM04000BV003
V501-2	WEDGE FT-00110W	XV10000T4001
PACKING		
S1	CARTON T1202UC	1EM423059
S2	STYROFOAM TOP ASSEMBLY T1201UB	1EM422969
S3	STYROFOAM BOTTOM ASSEMBLY T1201UB	1EM422970
S4	SERIAL NO. LABEL T1202UC	---------
S6	SET SHEET B7500UA 1000X1700	0EM402178
S7	HOLD PAD T1100UA	1EM420618
ACCESSORIES		
X1	BAG POLYETHYLENE 235X365XT0.03	0EM408420A
X2⚠	OWNERS MANUAL T1202UC	1EMN21613
X3	REMOTE CONTROL NF104UD 151/ECNX701/ NF104UD	NF104UD
X4	DRY BATTERY R6P(AR)2PX	XB0M451HU002

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

DVD MAIN CBA UNIT

Ref. No.	Description	Part No.
	DVD MAIN CBA UNIT	N79T1KUP

MMA CBA

Ref. No.	Description	Part No.
	MMA CBA Consists of the following:	1ESA12546
	MAIN CBA SENSOR CBA	---------- 1ESA12193

MAIN CBA

Ref. No.	Description	Part No.
	MAIN CBA Consists of the following:	----------
	CAPACITORS	
C1004	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHD1JZ30F103
C1008	ELECTROLYTIC CAP. 10μF/50V M H7	CE1JMAVSL100
C1030	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C1032	CHIP CERAMIC CAP. F Z 0.022μF/50V	CHD1JZ30F223
C1034	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C1035	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1036	CHIP CERAMIC CAP. CH J 120pF/50V	CHD1JJ3CH121
C1037	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHD1JZ30F103
C1040	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1043	FILM CAP.(P) 0.018μF/50V J	CMA1JJS00183
C1044	CHIP CERAMIC CAP.(1608) B K 0.047μF/50V	CHD1JK30B473
C1046	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C1047	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1048	ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C1117	CHIP CERAMIC CAP.(1608) B K 6800pF/50V	CHD1JK30B682
C1118	CHIP CERAMIC CAP.(1608) B K 6800pF/50V	CHD1JK30B682
C1203	CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V	CHD1JZ30F104
C1207	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1208	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1210	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1212	CHIP CERAMIC CAP.(1608) CH J 22pF/50V	CHD1JJ3CH220
C1213	CHIP CERAMIC CAP.(1608) CH J 22pF/50V	CHD1JJ3CH220
C1214	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1217	CHIP CERAMIC CAP.(1608) CH D 10pF/50V	CHD1JD3CH100
C1218	CHIP CERAMIC CAP. CH J 15pF/50V	CHD1JJ3CH150
C1222	CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C1223	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1224	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C1225	CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJ3CH561
C1227	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C1228	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C1234	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1235	CHIP CERAMIC CAP.(1608) B K 0.022μF/50V	CHD1JK30B223
C1239	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1240	CHIP CERAMIC CAP. CH J 560pF/50V	CHD1JJ3CH561
C1241	CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C1243	ELECTROLYTIC CAP. 22μF/16V M LL	CE1CMASLH220
C1245	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1247	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1251	CHIP CERAMIC CAP.(1608) B K 2700pF/50V	CHD1JK30B272
C1252	ELECTROLYTIC CAP. 100μF/16V M	CE1CMASDL101
C1253	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C1254	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C1264	CHIP CERAMIC CAP. F Z 0.047μF/50V	CHD1JZ30F473
C1299	ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C1309	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1312	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C1313	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C1314	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1316	ELECTROLYTIC CAP. 0.47μF/50V M H7	CE1JMAVSLR47
C1317	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1319	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1321	ELECTROLYTIC CAP. 100μF/10V M	CE1AMASDL101
C1323	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1325	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1332	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1333	CHIP CERAMIC CAP.(1608) F Z 0.1μF/50V	CHD1JZ30F104
C1336	STACKED FILM CAP. 0.47μF/50V J	CMA1JJS00474
C1337	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1338	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1339	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1342	ELECTROLYTIC CAP. 470μF/10V M	CE1AMASDL471
C1350	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1410	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1411	ELECTROLYTIC CAP. 100μF/10V M H7	CE1AMAVSL101
C1413	CHIP CERAMIC CAP.(1608) CH J 390pF/50V	CHD1JJ3CH391
C1414	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
C1415	ELECTROLYTIC CAP. 100μF/6.3V H7	CE0KMAVSL101
C1417	CHIP CERAMIC CAP. CH J 220pF/50V	CHD1JJ3CH221
C1418	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1419	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1420	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1421	ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C1422	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1423	ELECTROLYTIC CAP. 4.7μF/50V M H7	CE1JMAVSL4R7
C1424	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1425	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1426	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1427	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1428	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1429	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1430	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1431	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105

Ref. No.	Description	Part No.
C1432	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C1435	ELECTROLYTIC CAP. 1μF/50V M H7	CE1JMAVSL1R0
C1436	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1437	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1438	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1439	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1441	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1442	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1443	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1444	ELECTROLYTIC CAP. 22μF/16V M H7	CE1CMAVSL220
C1445	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1463	CHIP CERAMIC CAP. CH J 820pF/25V	CHD1EJ3CH821
C1464	CHIP CERAMIC CAP.(1608) B K 2700pF/50V	CHD1JK30B272
C1465	ELECTROLYTIC CAP. 22μF/50V M H7	CE1JMAVSL220
C1466	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1468	ELECTROLYTIC CAP. 33μF/16V M H7	CE1CMAVSL330
C1469	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C1604⚠	METALIZED FILM CAP. 0.1μF/250V	CT2E104MS037
C1605⚠	METALIZED FILM CAP. 0.22μF/250V	CT2E224MS037
C1606	CERAMIC CAP. F Z 0.01μF/500V	CCD2JZP0F103
C1607	CERAMIC CAP. F Z 0.01μF/500V	CCD2JZP0F103
C1610	ELECTROLYTIC CAP. 470μF/200V LX	CA2D471S6017
C1611	CERAMIC CAP. BN 680pF/2KV	CCD3DKA0B681
C1612	FILM CAP.(P) 0.033μF/50V J	CMA1JJS00333
C1613	FILM CAP.(P) 0.0012μF/50V J	CMA1JJS00122
C1614	FILM CAP.(P) 0.082μF/50V J	CMA1JJS00823
C1615	CERAMIC CAP. BN 820pF/2KV	CCD3DKA0B821
C1616	ELECTROLYTIC CAP. 100μF/160V M	CE2CMZPDL101
C1617	ELECTROLYTIC CAP. 470μF/35V M	CE1GMASDL471
C1618⚠	ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPDL102
C1619	ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPDL102
C1620	ELECTROLYTIC CAP. 1000μF/16V M	CE1CMZPDL102
C1621	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C1622	FILM CAP.(P) 0.0047μF/50V J	CMA1JJS00472
C1625	ELECTROLYTIC CAP. 0.47μF/50V M H7	CE1JMAVSLR47
C1626⚠	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C1630⚠	SAFETY CAP. 4700pF/250V KX	CA2E472MR050
C1642	CHIP CERAMIC CAP.(1608) B K 1000pF/50V	CHD1JK30B102
C1643	ELECTROLYTIC CAP. 1000μF/6.3V M	CE0KMASDL102
C1661	ELECTROLYTIC CAP. 100μF/16V M H7	CE1CMAVSL101
C1683	ELECTROLYTIC CAP. 220μF/6.3V M H7	CE0KMAVSL221
C1688⚠	ELECTROLYTIC CAP. 10μF/50V M	CE1JMASDL100
C1689	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C1710	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1711	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1712	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1713	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1715	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1716	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1717	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1740	CHIP CERAMIC CAP.(1608) F Z 0.1μF/25V	CHD1EZ30F104
C1801	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C1807	ELECTROLYTIC CAP. 220μF/16V M	CE1CMASDL221
C1810	CHIP CERAMIC CAP. B K 1500pF/50V	CHD1JK30B152
C1811	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1812	CHIP CERAMIC CAP. B K 1500pF/50V	CHD1JK30B152
C1813	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1814	ELECTROLYTIC CAP. 2.2μF/50V M H7	CE1JMAVSL2R2
C1815	ELECTROLYTIC CAP. 100μF/16V M H7	CE1CMAVSL101
C1816	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C1818	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1819	CHIP CERAMIC CAP. F Z 1μF/10V	CHD1AZ30F105
C1821	ELECTROLYTIC CAP. 470μF/16V M	CE1CMASDL471

Ref. No.	Description	Part No.
C1822	ELECTROLYTIC CAP. 470μF/16V M	CE1CMASDL471
C1870	ELECTROLYTIC CAP. 47μF/6.3V M H7	CE0KMAVSL470
C1871	ELECTROLYTIC CAP. 100μF/16V M H7	CE1CMAVSL101
C1872	CERAMIC CAP. B K 470pF/100V	CCD2AKS0B471
C1873	FILM CAP.(P) 0.018μF/100V J	CMA2AJS00183
	CONNECTORS	
CN601A	TERMINAL PRINTBORD PIN MS-PIN155155	JTEA001CHY01
CN601B	TERMINAL PRINTBORD PIN MS-PIN155155	JTEA001CHY01
CN1301	BOARD CONNECTOR 19P(PB FREE) 127301119K2	JCTWA19TG004
CN1602	BOARD CONNECTOR 19P(PB FREE) 127301119K2	JCTWA19TG004
CN1802	242 SERIES CONNECTOR 224202104W1	J322C04TG001
CN1803	TWG CONNECTOR 07P TWG-P07P-A1	J3TWA07TG001
	DIODES	
D1032	ZENER DIODE MTZJT-776.8A	QDTA0MTZJ6R8
D1204	LED LTL-4214M1	NPQZLTL4214M
D1211	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D1215	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D1216	LED LAMP 333GT/F45-50	NPWZ3GTF4550
D1217	LED LTL-4214M1	NPQZLTL4214M
D1224	LED SIR-563ST3F P	QPQPS1R563ST
D1229	ZENER DIODE MTZJT-7715B	QDTB00MTZJ15
D1230	ZENER DIODE MTZJT-7715B	QDTB00MTZJ15
D1231	ZENER DIODE MTZJT-7718A	QDTA00MTZJ18
D1237	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D1302	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1303	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1304	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1305	CARBON RES. 1/4W J 15 Ω	RCX4JATZ0150
D1351	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1419	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1420	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1603⚠	DIODE 1N5406	NDLZ001N5406
D1604⚠	DIODE 1N5406	NDLZ001N5406
D1605⚠	DIODE 1N5406	NDLZ001N5406
D1606⚠	DIODE 1N5406	NDLZ001N5406
D1607⚠	ZENER DIODE MTZJT-7724C	QDTC00MTZJ24
D1609⚠	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1610	ZENER DIODE MTZJT-775.6B	QDTB0MTZJ5R6
D1611	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1613	RECOVERY DIODE ERC18-04	QDZZ0ERC1804
D1614⚠	DIODE FR104-B	NDLZ000FR104
D1615	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1616⚠	FAST RECOVERY DIODE FR202	NDWZ000FR202
D1617⚠	FAST RECOVERY DIODE FR202	NDWZ000FR202
D1618⚠	DIODE FR154	NDLZ000FR154
D1619⚠	DIODE FR104-B	NDLZ000FR104
D1620⚠	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D1621	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1622⚠	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1623	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1624	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1626	ZENER DIODE MTZJT-7736A	QDTA00MTZJ36
D1627	ZENER DIODE MTZJT-7718C	QDTC00MTZJ18
D1628	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1634	ZENER DIODE MTZJT-778.2B	QDTB0MTZJ8R2
D1635	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1636	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1637	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1640⚠	DIODE 1ZC36(Q)	QDLZ001ZC36Q
D1641⚠	ZENER DIODE MTZJT-7739B	QDTB00MTZJ39
D1645⚠	FAST RECOVERY DIODE FR202	NDWZ000FR202

Ref. No.	Description	Part No.
D1646	DIODE FR154	NDLZ000FR154
D1657	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1660	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1663	ZENER DIODE MTZJT-776.2C	QDTC0MTZJ6R2
D1680	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1682	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1683	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1684	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1687	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1688	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1811	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1812	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1813	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
ICS		
IC1001	IC VIF/SIF M61113FP TF0G	QSZBA0SHT035
IC1201⚠	MICRO COMPUTER M3776AMCH-BA4GP	QSZAA0RHT099
IC1202	IC CAT24WC02WI-TE13	NSZBA0TBG007
IC1301⚠	VCD IC M61275FP-TF3H	QSZAD0RMB133
IC1401	IC Y/C/A LA71205M-MPB-E	QSZBA0RSY037
IC1402	IC SWITCH TC4053BF(EL N F)	QSZBA0TTS163
IC1601⚠	PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC1682⚠	IC VOLTAGE REGULATOR 5V KIA7805API/P	NSZBA0SJY041
IC1803	IC AN17812A	QSZBA0SMS017
COILS		
L1031	PCB JUMPER D0.6-P5.0	JW5.0T
L1032	PCB JUMPER D0.6-P5.0	JW5.0T
L1034	INDUCTOR 15μH-J-26T	LLAXJATTU150
L1202	INDUCTOR 0.10μH-K-26T	LLAXKATTUR10
L1601⚠	LINE FILTER 2.7MH ELF15N013A	LLBG00ZMS037
L1872	INDUCTOR 47μH-K-5FT	LLARKBSTU470
TRANSISTORS		
Q1205	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q1206	PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F
Q1221	RES. BUILT-IN TRANSISTOR KRA103M-AT/P	NQSZ0KRA103M
Q1350	NPN TRANSISTOR 2SC1627-Y (TE2.F.T)	QQSY2SC1627F
Q1401	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q1402	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q1403	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q1601⚠	MOS FET 2SK3563	QFWZ02SK3563
Q1602⚠	TRANSISTOR 2SC2120-O(TE2 F T)	QQS02SC2120F
Q1604⚠	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q1605	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q1606⚠	TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q1607⚠	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q1609	TRANSISTOR 2SC2120-O(TE2 F T)	QQS02SC2120F
Q1613	TRANSISTOR KTC3199-GR-AT/P	NQS4KTC3199P
Q1681⚠	TRANSISTOR KTC3205-Y-AT/P	NQSYKTC3205P
Q1688⚠	TRANSISTOR KTC3205-Y-AT/P	NQSYKTC3205P
Q1871	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q1872	TRANSISTOR 2SC2120-O(TE2 F T)	QQS02SC2120F
Q1873	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q1874	TRANSISTOR 2SC3331(T)	QSC3331TNPAA
Q1875	RES. BUILT-IN TRANSISTOR KRA103M-AT/P	NQSZ0KRA103M
RESISTORS		
R1002	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1003	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1030	CHIP RES. 1/10W J 220k Ω	RRXAJR5Z0224
R1032	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1034	CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R1036	CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R1037	CHIP RES. 1/10W J 180 Ω	RRXAJR5Z0181
R1039	CARBON RES. 1/4W J 47 Ω	RCX4JATZ0470

Ref. No.	Description	Part No.
R1041	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R1042	CHIP RES. 1/10W J 27k Ω	RRXAJR5Z0273
R1043	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R1044	CARBON RES. 1/4W J 200 Ω	RCX4JATZ0201
R1045	CHIP RES. 1/10W J 150 Ω	RRXAJR5Z0151
R1046	PCB JUMPER D0.6-P5.0	JW5.0T
R1048	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1052	CHIP RES. 1/10W J 220k Ω	RRXAJR5Z0224
R1053	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1110	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1111	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1159	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R1160	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1163	CHIP RES. 1/10W J 1.8k Ω	RRXAJR5Z0182
R1164	CHIP RES. 1/10W J 1.8k Ω	RRXAJR5Z0182
R1200	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1201	CHIP RES. 1/16W G 4.7k Ω	RRXAGR5Z0472
R1202	CHIP RES. 1/16W G 22k Ω	RRXAGR5Z0223
R1203	CHIP RES. 1/16W G 470 Ω	RRXAGR5Z0471
R1204	CHIP RES. 1/16W G 1.5k Ω	RRXAGR5Z0152
R1205	CHIP RES. 1/16W G 3.6k Ω	RRXAGR5Z0362
R1206	CHIP RES. 1/16W G 10k Ω	RRXAGR5Z0103
R1207	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1208⚠	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1209	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1210	CHIP RES. 1/16W G 15k Ω	RRXAGR5Z0153
R1211	CHIP RES. 1/16W G 6.8k Ω	RRXAGR5Z0682
R1212	CHIP RES. 1/16W G 4.7k Ω	RRXAGR5Z0472
R1213	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1214	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1215	CHIP RES. 1/16W G 1.5k Ω	RRXAGR5Z0152
R1216	CHIP RES. 1/16W G 1.5k Ω	RRXAGR5Z0152
R1217	CHIP RES. 1/10W G 2.2k Ω	RRXAGR5Z0222
R1218	CHIP RES. 1/16W G 2.7k Ω	RRXAGR5Z0272
R1219	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1220	CHIP RES. 1/10W J 390k Ω	RRXAJR5Z0394
R1221	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1222	CHIP RES. 1/10W J 390k Ω	RRXAJR5Z0394
R1224	CHIP RES. 1/10W J 680 Ω	RRXAJR5Z0681
R1225	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1227	CHIP RES. 1/10W J 270 Ω	RRXAJR5Z0271
R1229	CHIP RES. 1/10W J 680 Ω	RRXAJR5Z0681
R1231	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1232	CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
R1233	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1234	CHIP RES. 1/10W J 1.2k Ω	RRXAJR5Z0122
R1235	CHIP RES. 1/10W J 47 Ω	RRXAJR5Z0470
R1236	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1237	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1238	CHIP RES. 1/10W J 470k Ω	RRXAJR5Z0474
R1239	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1240	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1241	CHIP RES. 1/10W J 4.7k Ω	RRXAJR5Z0472
R1243	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1244	CHIP RES. 1/10W J 1M Ω	RRXAJR5Z0105
R1245	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1246	CHIP RES. 1/10W J 4.7k Ω	RRXAJR5Z0472
R1247	CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821
R1248	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1249	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1250	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1251	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1252	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152

Ref. No.	Description	Part No.
R1253	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1254	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1255	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1257	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1258	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1259	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R1260	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1261	METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2ZU001
R1262	CHIP RES. 1/10W J 680 Ω	RRXAJR5Z0681
R1263	CHIP RES. 1/10W J 39k Ω	RRXAJR5Z0393
R1267	CHIP RES. 1/10W J 82k Ω	RRXAJR5Z0823
R1270	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1273	CHIP RES. 1/10W J 1.8k Ω	RRXAJR5Z0182
R1274	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R1277	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1278	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1280	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1283	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1284	CHIP RES. 1/10W J 220k Ω	RRXAJR5Z0224
R1285	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1286	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1287	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1289	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1290	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1298	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1299	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1301	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1303	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1305	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1308	CHIP RES. 1/10W J 120k Ω	RRXAJR5Z0124
R1310	CHIP RES. 1/10W J 180k Ω	RRXAJR5Z0184
R1313	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1314	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1315	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1316	CHIP RES. 1/10W J 3.3k Ω	RRXAJR5Z0332
R1317	CHIP RES. 1/10W J 3.3M Ω	RRXAJR5Z0335
R1329	CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R1334	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1335	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1336	CHIP RES. 1/10W J 5.6k Ω	RRXAJR5Z0562
R1337	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R1338	CHIP RES. 1/10W J 130 Ω	RRXAJR5Z0131
R1339	CHIP RES. 1/10W J 130 Ω	RRXAJR5Z0131
R1340	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1350	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R1351	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1352	CARBON RES. 1/4W J 33 Ω	RCX4JATZ0330
R1405	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1406	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1407	CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R1408	CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R1409	CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
R1410	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1411	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1412	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1413	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R1415	CHIP RES. 1/10W J 1.2k Ω	RRXAJR5Z0122
R1416	CHIP RES. 1/10W J 330k Ω	RRXAJR5Z0334
R1417	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1418	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1419	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R1420	CHIP RES. 1/10W J 12k Ω	RRXAJR5Z0123
R1421	CHIP RES. 1/10W J 8.2k Ω	RRXAJR5Z0822

Ref. No.	Description	Part No.
R1422	CHIP RES. 1/10W J 180 Ω	RRXAJR5Z0181
R1424	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1425	CHIP RES. 1/10W J 82k Ω	RRXAJR5Z0823
R1426	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1427	CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821
R1428	CHIP RES. 1/10W J 680k Ω	RRXAJR5Z0684
R1429	CHIP RES. 1/10W J 1.2k Ω	RRXAJR5Z0122
R1431	CHIP RES. 1/10W J 8.2k Ω	RRXAJR5Z0822
R1432	CHIP RES. 1/10W J 1.2k Ω	RRXAJR5Z0122
R1602	CEMENT RES 5W K 1.2 Ω	RW051R2PG002
R1603⚠	METAL OXIDE FILM RES. 2W J 0.33 Ω	RN02R33ZU001
R1604	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R1605	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R1606	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R1607	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R1608	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R1610	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R1613	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R1614	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R1617	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R1618	PCB JUMPER D0.6-P5.0	JW5.0T
R1619	METAL OXIDE FILM RES. 1W J 2.2k Ω	RN01222ZU001
R1620	METAL OXIDE FILM RES. 1W J 2.2k Ω	RN01222ZU001
R1621	METAL OXIDE FILM RES. 1W J 4.7k Ω	RN01472ZU001
R1622	PCB JUMPER D0.6-P5.0	JW5.0T
R1623	CHIP RES. 1/10W J 33k Ω	RRXAJR5Z0333
R1624⚠	CARBON RES. 1/4W G 47k Ω	RCX4GATZ0473
R1625⚠	CARBON RES. 1/4W G 39k Ω	RCX4GATZ0393
R1629⚠	CARBON RES. 1/4W J 13k Ω	RCX4JATZ0133
R1630	CARBON RES. 1/4W J 13k Ω	RCX4JATZ0133
R1631	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R1632⚠	CARBON RES. 1/4W G 680 Ω	RCX4GATZ0681
R1633⚠	CARBON RES. 1/4W G 5.6k Ω	RCX4GATZ0562
R1634	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R1635	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1636	METAL OXIDE FILM RES. 1W J 2.2k Ω	RN01222ZU001
R1637	PCB JUMPER D0.6-P5.0	JW5.0T
R1638	PCB JUMPER D0.6-P5.0	JW5.0T
R1639⚠	CARBON RES. 1/2W J 1.2k Ω	RCX2JZQZ0122
R1640⚠	CHIP RES. 1/10W J 56k Ω	RRXAJR5Z0563
R1641	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1642⚠	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R1644⚠	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R1645⚠	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R1646	CARBON RES. 1/4W J 470 Ω	RCX4JATZ0471
R1650	METAL OXIDE FILM RES. 1W J 4.7k Ω	RN01472ZU001
R1654⚠	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R1655⚠	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R1662	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R1663	CARBON RES. 1/4W J 560k Ω	RCX4JATZ0564
R1664	CHIP RES. 1/10W J 100 Ω	RRXAJR5Z0101
R1665	CARBON RES. 1/4W J 22 Ω	RCX4JATZ0220
R1666	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R1667	CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R1685	METAL RESISTOR 1W J 3.9 Ω	RN013R9ZU001
R1686	CARBON RES. 1/4W J 120 Ω	RCX4JATZ0121
R1688	METAL OXIDE FILM RES. 1W J 10 Ω	RN01100ZU001
R1689	CARBON RES. 1/4W J 1.2 Ω	RCX4JATZ01R2
R1691	CARBON RES. 1/4W J 1.2 Ω	RCX4JATZ01R2
R1692	METAL OXIDE FILM RES. 1W J 10 Ω	RN01100ZU001
R1701	CHIP RES. 1/10W J 75 Ω	RRXAJR5Z0750
R1710	CHIP RES. 1/10W J 10k Ω	RRXAJR5Z0103
R1711	CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272

Ref. No.	Description	Part No.
R1712	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1713	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1714	CHIP RES. 1/10W J 1.8k Ω	RRXAJR5Z0182
R1715	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1716	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1717	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1718	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1719	CHIP RES. 1/10W J 100k Ω	RRXAJR5Z0104
R1772	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R1780	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R1801⚠	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R1802⚠	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R1803⚠	METAL OXIDE FILM RES. 1W J 12 Ω	RN01120ZU001
R1808⚠	METAL OXIDE FILM RES. 1W J 12 Ω	RN01120ZU001
R1809	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1810	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1813	CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R1814	CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R1815	CHIP RES. 1/10W J 33k Ω	RRXAJR5Z0333
R1816	CHIP RES. 1/10W J 33k Ω	RRXAJR5Z0333
R1871	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R1872	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R1873	CHIP RES. 1/10W J 18k Ω	RRXAJR5Z0183
R1874	CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R1875	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1876	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R1877	CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
	SWITCHES	
SW1201	TACT SWITCH SKQSAB	SST0101AL038
SW1202	TACT SWITCH SKQSAB	SST0101AL038
SW1203	TACT SWITCH SKQSAB	SST0101AL038
SW1206	TACT SWITCH SKQSAB	SST0101AL038
SW1207	TACT SWITCH SKQSAB	SST0101AL038
SW1208	TACT SWITCH SKQSAB	SST0101AL038
SW1209	TACT SWITCH SKQSAB	SST0101AL038
SW1210	TACT SWITCH SKQSAB	SST0101AL038
SW1211	LEAF SWITCH LSA-1142-2AU	SSC0101KB014
SW1212	ROTARY MODE SWITCH SSS-53MD	SSR0106KB003
	MISCELLANEOUS	
BC1600	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC1601	PCB JUMPER D0.6-P5.0	JW5.0T
BC1603	PCB JUMPER D0.6-P5.0	JW5.0T
BC1604	BEAD CORE B16 RH 3.5X3X1.3	XL03003XM002
BC1606	BEAD CORE B16 RH 3.5X3X1.3	XL03003XM002
CF1031	CERAMIC TRAP 4.5MHz	FBE455PMR003
CF1032	CERAMIC SIF FILTER EFCS4R5YS8P	FBB455LMS001
CL1201	FMN CONNECTOR TOP 12P 12FMN-BTRK-A(LF)(SN)	JCFNG12JG020
F1601⚠	FUSE 4.00A/125V	PAGG20CNG402
FH1601	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
FH1602	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
JC1601	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
JK1701	RCA JACK(YELLOW) (PB FREE) AV-3B-54H	JXRL010SNJ01
JK1702	JACK RCA PCB L 01 AV1-05-023	JXRL010RP042
JK1703	RCA JACK(RED) (PB FREE) AV-3A-57H	JYRL010SNJ01
JK1801	MINIATURE JACK(PB FREE) CKX-035-318AZ4	JYSL010SNJ01
JS1601	PCB JUMPER D0.6-P5.0	JW5.0T
PS1601	THERMISTOR ZPB45BL3R0A	QNBZ45BL3R0A
RS1201	REMOTE RECEIVER PIC-37042LU	USESJRSKK033
SF1002	FILTER CERAMIC BAND PASS SAFHS45M7VAMZ00B05	FBB456LMR005
SG1601⚠	GAP. FNR-G3.10D	FAZ000LD6005
T1601⚠	SWITCHING TRANS 6713	LTT3PC0KT002

Ref. No.	Description	Part No.
TB3	HEAD SHIELD T1200UA	1EM321250
TB13	BUSH LED(F) H3700UD	0VM409508
TB17	X7 MAIN HEAT SINK PLF ASSEMBLY T1200UA	1EM422272
TL6	SCREW B-TIGHT D3X8 BIND HEAD+	GBJB3080
TP1202	PCB JUMPER D0.6-P16.0	JW16.0T
TP1301	PCB JUMPER D0.6-P9.0	JW9.0T
TP1302	PCB JUMPER D0.6-P8.0	JW8.0T
TP1303	PCB JUMPER D0.6-P8.5	JW8.5T
TP1304	PCB JUMPER D0.6-P5.0	JW5.0T
TP1305	PCB JUMPER D0.6-P5.0	JW5.0T
TP1306	PCB JUMPER D0.6-P11.5	JW11.5T
TP1401	PCB JUMPER D0.6-P13.5	JW13.5T
TP1402	PCB JUMPER D0.6-P17.5	JW17.5T
TP1403	PCB JUMPER D0.6-P23.0	JW23.0T
TP1701	PCB JUMPER D0.6-P22.5	JW22.5T
TP1702	PCB JUMPER D0.6-P26.0	JW26.0T
TP1703	PCB JUMPER D0.6-P29.0	JW29.0T
TU1001	TUNER UNIT TEFH9-001A	UTUNNTUAL042
VR1601⚠	CARBON P.O.T. VZ067TL1 B103 PB(F)	VRCB103HH014
W1601⚠	AC CORD (PB FREE) A0A0280-012	WAC0172LTE12
WT1	LEAD CLAMPER	1790256
X1201	XTAL DT38 32.768kHz	FX0323LDS001
X1202	XTAL HC-49/U 10.6MHz	FXD106LLN001
X1301	XTAL 3.579545 MHz	FXD355LLN003
X1401	XTAL 3.579545MHz(20PPM)	FXC355LLN004

SENSOR CBA

Ref. No.	Description	Part No.
	SENSOR CBA Consists of the following:	1ESA12193
	TRANSISTORS	
Q1201	PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F
Q1202	PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F

MPS CBA

Ref. No.	Description	Part No.
	MPS CBA Consists of the following:	1ESA12169
	SUB CBA (MPS-A) CRT CBA (MPS-B) FUNCTION CBA (MPS-C) JUNCTION-A CBA JUNCTION-B CBA	--------- --------- --------- --------- ---------

SUB CBA

Ref. No.	Description	Part No.
	SUB CBA (MPS-A) Consists of the following:	---------
	CAPACITORS	
C2531	METALIZED FILM CAP. 0.27μF/200V J	CT2D274F7003
C2533⚠	P.P. CAP 0.0082μF/1.6K J	CA3C822VC011
C2552	FILM CAP.(P) 0.22μF/100V J	CMA2AJS00224
C2553	ELECTROLYTIC CAP. 2.2μF/50V LL	CE1JMASLH2R2
C2555	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470
C2556	ELECTROLYTIC CAP. 1000μF/25V M	CE1EMZPDL102
C2559	ELECTROLYTIC CAP. 470μF/35V M	CE1GMASDL471
C2560	FILM CAP.(P) 0.033μF/50V J	CMA1JJS00333
C2561	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C2573	FILM CAP.(P) 0.01μF/100V J	CMA2AJS00103
C2574⚠	ELECTROLYTIC CAP. 4.7μF/250V M	CE2EMASDL4R7
C2577	FILM CAP.(P) 0.022μF/50V J	CMA1JJS00223
C2578	ELECTROLYTIC CAP. 47μF/35V M	CE1GMASDL470

Ref. No.	Description	Part No.
C2583	ELECTROLYTIC CAP. 1μF/160V M	CE2CMASDL1R0
C2584⚠	PCB JUMPER D0.6-P5.0	JW5.0T
C2586	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C2590	CHIP CERAMIC CAP. F Z 0.01μF/50V	CHD1JZ30F103
C2591⚠	ELECTROLYTIC CAP. 2.2μF/50V M	CE1JMASDL2R2
C2592	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C2594	ELECTROLYTIC CAP. 47μF/160V M W/F	CE2CMZNDL470
C2595⚠	ZENER DIODE MTZJT-7718C	QDTC00MTZJ18
C2603	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C2604	ELECTROLYTIC CAP. 1000μF/6.3V M	CE0KMASDL102
C2605	CHIP CERAMIC CAP.(1608) CH J 100pF/50V	CHD1JJ3CH101
C2616	ELECTROLYTIC CAP. 100μF/6.3V M	CE0KMASDL101
C2629	ELECTROLYTIC CAP. 220μF/6.3V M	CE0KMASDL221
C2630	ELECTROLYTIC CAP. 470μF/16V M	CE1CMASDL471
C2645	CHIP CERAMIC CAP.(1608) B K 0.01μF/50V	CHD1JK30B103
C2670	ELECTROLYTIC CAP. 470μF/6.3V M	CE0KMASDL471
C2703	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
CONNECTORS		
CN2502	TWG CONNECTOR 19P TWG-P19P-A1	J3TWA19TG001
CN2503	TWG CONNECTOR 19P TWG-P19P-A1	J3TWA19TG001
CN2571	CONNECTOR PRINT OSU 5P RTB-1.5-5P (LF)	J3RTC05JG002
DIODES		
D2552	DIODE FR104-B	NDLZ000FR104
D2572⚠	DIODE FR104-B	NDLZ000FR104
D2584	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D2585	ZENER DIODE MTZJT-775.1B	QDTB0MTZJ5R1
D2591⚠	ZENER DIODE MTZJT-7736B	QDTB00MTZJ36
D2595⚠	ZENER DIODE MTZJT-7720C	QDTC00MTZJ20
D2596⚠	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D2597⚠	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D2598⚠	DIODE FR104-B	NDLZ000FR104
D2601	ZENER DIODE MTZJT-776.2B	QDTB0MTZJ6R2
D2603	ZENER DIODE MTZJT-775.6C	QDTC0MTZJ5R6
D2604	DIODE 1N5397-B	NDLZ001N5397
D2627	ZENER DIODE MTZJT-773.9B	QDTB0MTZJ3R9
D2661	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D2662	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D2703	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
ICS		
IC2551	VERTICAL OUTPUT IC LA78040A	QSBBA0SSY003
IC2602	VOLTAGE REGULATOR TLV1117IDCYRG3	NSZBA0TTY219
IC3603	IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
IC3604	IC SHUNT REGULATOR KIA431-AT/P	NSZBA0TJY036
COILS		
L2505	CHOKE COIL 22μH-K	LLBD00PKV021
L2613	INDUCTOR 10μH-K-5FT	LLARKBSTU100
L2701	PCB JUMPER D0.6-P5.0	JW5.0T
TRANSISTORS		
Q2201	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q2202	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q2203	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q2571⚠	TRANSISTOR TT2140LS-YB11	QQZZ00TT2140
Q2591⚠	NPN TRANSISTOR 2SC1627-Y (TE2.F.T)	QQSY2SC1627F
Q2592⚠	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q2610	TRANSISTOR 2SA1175(F)	QQSF02SA1175
Q2611	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q2612	TRANSISTOR 2SC2785(F)	QQSF02SC2785
Q2615	TRANSISTOR KTC3205-Y-AT/P	NQSYKTC3205P
Q2616	NPN TRANSISTOR KRC103M-AT/P	NQSZKRC103MP
Q2617	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q2618	TRANSISTOR 2SA950-O (TE2 F T)	QQS002SA950F
Q2619	TRANSISTOR 2SC2785(F)	QQSF02SC2785

Ref. No.	Description	Part No.
Q2701	TRANSISTOR 2SC2785(F)	QQSF02SC2785
RESISTORS		
R2201	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R2202	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R2203	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R2501	CHIP RES. 1/10W J 39k Ω	RRXAJR5Z0393
R2504	CHIP RES. 1/10W J 15k Ω	RRXAJR5Z0153
R2541	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2542	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2543	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2550	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2551	CHIP RES. 1/10W J 1.5k Ω	RRXAJR5Z0152
R2552	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2555	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R2556	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R2557	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R2558	CHIP RES. 1/10W J 12k Ω	RRXAJR5Z0123
R2559	CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R2560	CHIP RES. 1/10W J 2.7k Ω	RRXAJR5Z0272
R2561	CHIP RES. 1/10W J 3.9k Ω	RRXAJR5Z0392
R2562	CARBON RES. 1/4W J 6.8 Ω	RCX4JATZ06R8
R2563	CARBON RES. 1/4W J 6.8 Ω	RCX4JATZ06R8
R2564	CARBON RES. 1/4W J 6.8 Ω	RCX4JATZ06R8
R2565⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R2566⚠	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R2567⚠	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R2568⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R2571	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2572	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2573	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2576	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R2577	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R2580⚠	CARBON RES. 1/4W J 56 Ω	RCX4JATZ0560
R2581	CHIP RES. 1/10W J 470 Ω	RRXAJR5Z0471
R2583⚠	METAL RESISTER. 2W J 2.7 Ω	RN022R7ZU001
R2584	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R2585	CHIP RES. 1/10W J 6.8k Ω	RRXAJR5Z0682
R2586	PCB JUMPER D0.6-P5.0	JW5.0T
R2587	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R2588	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R2589⚠	CARBON RES. 1/4W J 56 Ω	RCX4JATZ0560
R2590	CARBON RES. 1/4W J 56 Ω	RCX4JATZ0560
R2591⚠	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R2592	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R2593	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R2594	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R2598⚠	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R2599⚠	CHIP RES. 1/10W J 5.6k Ω	RRXAJR5Z0562
R2601	CHIP RES. 1/10W J 5.6k Ω	RRXAJR5Z0562
R2602	CHIP RES. 1/10W J 27k Ω	RRXAJR5Z0273
R2613	CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R2614	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R2618	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R2649	CHIP RES. 1/10W J 3.3 Ω	RRXAJR5Z03R3
R2650	CARBON RES. 1/4W J 1.5 Ω	RCX4JATZ01R5
R2651	CHIP RES. 1/10W J 47k Ω	RRXAJR5Z0473
R2653	CARBON RES. 1/4W J 33 Ω	RCX4JATZ0330
R2655	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R2656	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R2657	CHIP RES. 1/10W J 22k Ω	RRXAJR5Z0223
R2658	CHIP RES. 1/10W J 1k Ω	RRXAJR5Z0102
R2659	CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821

Ref. No.	Description	Part No.
R2660	CHIP RES. 1/10W J 820 Ω	RRXAJR5Z0821
R2671	CHIP RES. 1/10W F 5.6k Ω	RRXAFR5Z5601
R2672	CHIP RES. 1/10W F 15k Ω	RRXAFR5Z1502
R2675	CARBON RES. 1/4W J 330 Ω	RCX4JATZ0331
R2676	CHIP RES. 1/10W J 82k Ω	RRXAJR5Z0823
R2677	METAL OXIDE FILM RES. 1W J 1.2 Ω	RN011R2ZU001
R2678	CHIP RES. 1/10W J 560 Ω	RRXAJR5Z0561
R2679	METAL OXIDE FILM RES. 1W J 2.2 Ω	RN012R2ZU001
R2685	CHIP RES. 1/10W J 330 Ω	RRXAJR5Z0331
R2687	CHIP RES. 1/10W G 5.6k Ω	RRXAGR5Z0562
R2688	CHIP RES. 1/16W G 15k Ω	RRXAGR5Z0153
R2691	CARBON RES. 1/4W J 1.2 Ω	RCX4JATZ01R2
R2701	CHIP RES. 1/10W J 2k Ω	RRXAJR5Z0202
R2702	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R2703	CHIP RES. 1/10W J 2.2k Ω	RRXAJR5Z0222
R2704	CHIP RES. 1/10W J 220 Ω	RRXAJR5Z0221
R2705	CARBON RES. 1/4W J 75 Ω	RCX4JATZ0750
R3506	PCB JUMPER D0.6-P5.0	JW5.0T
R3568⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R3576	PCB JUMPER D0.6-P5.0	JW5.0T
R3580	PCB JUMPER D0.6-P5.0	JW5.0T
MISCELLANEOUS		
BC2501	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
CL2601	LEAD WIRE 5P 330MM	WX1T2120-001
DB2	X7 H/V HEAT SINK PLJ T1200UA	1EM321251
DL2	SCREW B-TIGHT D3X8 BIND HEAD+	GBJB3080
JK2701	JACK RCA PCB L MSP-241V-05 NI LFW/O	JXRL010LY148
T2571⚠	TRANS FBT JF0501-3201A-G	LTF00CPXB048
T2572⚠	HORIZONTAL DRIVE TRANS LP2-005	LTH00CPA5005
TP2501	PCB JUMPER D0.6-P10.5	JW10.5T
TP2504	PCB JUMPER D0.6-P12.5	JW12.5T
TP2506	PCB JUMPER D0.6-P10.0	JW10.0T
TP2512	PCB JUMPER D0.6-P22.0	JW22.0T
TP2513	PCB JUMPER D0.6-P9.0	JW9.0T

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA (MPS-B) Consists of the following:	----------
CAPACITORS		
C2504	CHIP CERAMIC CAP. B K 390pF/50V	CHD1JK30B391
C2505	CHIP CERAMIC CAP. B K 330pF/50V	CHD1JK30B331
C2506	CHIP CERAMIC CAP. B K 330pF/50V	CHD1JK30B331
C2508	ELECTROLYTIC CAP. 47μF/25V M	CE1EMASDL470
C2509	CERAMIC CAP. B K 1000pF/2KV	CCD3DKP0B102
DIODE		
D2505	PCB JUMPER D0.6-P5.0	JW5.0T
COIL		
L2501	INDUCTOR 180μH-J-5FT	LLARJCSTU181
TRANSISTORS		
Q2501	NPN TRANSISTOR 2SC2482(T6FUNAIF M)	QRSZ2SC2482F
Q2502	NPN TRANSISTOR 2SC2482(T6FUNAIF M)	QRSZ2SC2482F
Q2503	NPN TRANSISTOR 2SC2482(T6FUNAIF M)	QRSZ2SC2482F
RESISTORS		
R2502	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2503	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2507	CHIP RES. 1/10W J 33 Ω	RRXAJR5Z0330
R2508	CHIP RES. 1/10W J 33 Ω	RRXAJR5Z0330
R2509	CHIP RES. 1/10W J 33 Ω	RRXAJR5Z0330
R2510	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R2511	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R2512	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R2513	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R2514	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R2515	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R2516⚠	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153ZU001
R2517⚠	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153ZU001
R2518⚠	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153ZU001
R2519	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2520	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2521	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R2523	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
MISCELLANEOUS		
CL2501	LEAD WIRE 3P 420MM	WX1T1000-001
JK2501⚠	CRT SOCKET ISMP02S	JSCC220PK009

FUNCTION CBA

Ref. No.	Description	Part No.
	FUNCTION CBA (MPS-C) Consists of the following:	----------
CONNECTORS		
CN2401	BOARD CONNECTOR 07P(PB FREE) 127301107K2	JCTWA07TG004
CN2801	242 SERIES CONNECTOR 224202104W1	J322C04TG001
RESISTORS		
R2401	CHIP RES. 1/16W G 1.5k Ω	RRXAGR5Z0152
R2402	CHIP RES. 1/16W G 1.5k Ω	RRXAGR5Z0152
R2403	CHIP RES. 1/10W G 2.2k Ω	RRXAGR5Z0222
R2404	CHIP RES. 1/16W G 2.7k Ω	RRXAGR5Z0272
R2405	CHIP RES. 1/16W G 4.7k Ω	RRXAGR5Z0472
R2406	CHIP RES. 1/16W G 6.8k Ω	RRXAGR5Z0682
R2407	CHIP RES. 1/16W G 15k Ω	RRXAGR5Z0153
SWITCHES		
SW2401	TACT SWITCH SKQSAB	SST0101AL038
SW2402	TACT SWITCH SKQSAB	SST0101AL038
SW2403	TACT SWITCH SKQSAB	SST0101AL038
SW2404	TACT SWITCH SKQSAB	SST0101AL038
SW2405	TACT SWITCH SKQSAB	SST0101AL038
SW2406	TACT SWITCH SKQSAB	SST0101AL038
SW2407	TACT SWITCH SKQSAB	SST0101AL038
SW2408	TACT SWITCH SKQSAB	SST0101AL038

JUNCTION-A CBA

Ref. No.	Description	Part No.
	JUNCTION-A CBA Consists of the following:	----------
CONNECTOR		
CN3802	242 SERIES CONNECTOR TUC-P04X-B1 WHT ST	JCTUB04TG002
MISCELLANEOUS		
CL3802	WIRE ASSEMBLY 2P 180MM	WX1T9200-005

JUNCTION-B CBA

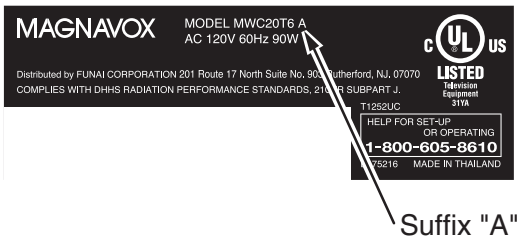
Ref. No.	Description	Part No.
	JUNCTION-B CBA Consists of the following:	----------
CONNECTOR		
CN3801	242 SERIES CONNECTOR TUC-P04X-B1 WHT ST	JCTUB04TG002
MISCELLANEOUS		
CL3801	WIRE ASSEMBLY 2P 180MM	WX1T9200-005

SUPPLEMENT

MAGNAVOX
SERVICE MANUAL

There are two versions of the MWC20T6. The A version and the non-A version. Version A differs from the non-A version depending on the country of origin; therefore the Rating Label and the carton are different.

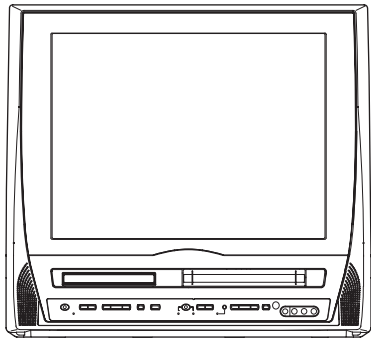
Rating Label



This Service Manual is for the A version model. To verify the model type, refer to the Rating Label on the right. The parts list below is different from the non-A version's. For other information, refer to the non-A version original Service Manual.

20″ PURE FLAT COLOR TV/DVD/VCR

MWC20T6



Different parts from the non-A version model (MWC20T6)

Ref. No.	Description	Part No.
MECHANICAL PARTS		
A3⚠	RATING LABEL T1252UC	----------
CLN551	WIRE ASSEMBLY CRT GND	WX1L7820-003
DG601⚠	DEGAUSSING COIL (AL) ZTM054A	LLBH00ZTM069
TB19	Not Used	
S1	CARTON T1252UC	1EM424127
S2	STYROFOAM TOP T1201UB	1EM020851
S3	STYROFOAM BOTTOM T1201UB	1EM020852
S4	SERIAL NO. LABEL L9750UA	----------
X2⚠	OWNERS MANUAL T1252UC	1EMN22103
ELECTRICAL PARTS		
	MPS CBA	1ESA14040
	CRT CBA	----------
CN2501	CONNECTOR PIN 1P RT-01N-2.3A	1730688